

The Mining Journal

RAILWAY AND COMMERCIAL GAZETTE.

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

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London, Saturday, August 19, 1848.

[PRICE 6D.]

WEST BASSET.—TO BE SOLD BY PUBLIC AUCTION, at the MINE, on Monday, the 28th inst., at Three o'clock in the afternoon, in one lot, all that MINE, called WEST BASSET, and the MATERIALS thereon, consisting of a 36-inch cylinder STEAM-ENGINE, with boiler, about 10 tons; 100 fathoms of 10-inch pitwork, and a variety of other articles, all in good condition. The mine is situated in the parish of Illogan, in the county of Cornwall—west of South West Basset—north of and adjoining South Wheal Francis. For inspection of the mine and materials, apply to the agent thereon; and for further particulars, to Captain William Richards, Redruth. Dated August 8, 1848.

TO BE SOLD, OR LET, a valuable COAL MINE, in the township of GREAT HARWOOD, in the county of Lancaster. The mine has been recently proved, and found to be 3 feet 2 inches in thickness, and of excellent quality; it is commonly called, or known, by the name of the UPPER MOUNTAIN MINE, and extends over about 1000 statute acres, which will be divided into suitable lots. The property is situated between the towns of Blackburn and Clitheroe, and is intersected by a branch of the East Lancashire Railway.

A section of the borings may be seen, by applying to Mr. Boosie, Rufford-hall, Ormskirk; or to Mr. Whittle, coal viewer, Charnock Richard, Chorley—to either of whom proposals may be sent.

DUKE OF PORTLAND'S TROON COAL.—Edinburgh, August 1, 1848.—These are to intimate, that Messrs. ARCHIBALD FINNIE and SON, of KILMARNOCK, have now become the SOLE LESSEES of His Grace the DUKE OF PORTLAND'S KILMARNOCK COLLIERY, and the ONLY SHIPPERS of the Duke's COAL at TROON.

Commissioner for His Grace the Duke of Portland.

With reference to the prefixed, Messrs. ARCHIBALD FINNIE and SON take this opportunity of intimating, that their NEW PITS are producing COAL, which has proved to be superior to any hitherto shipped from His Grace's collieries. Great care is given to secure the proper working, and particularly the due screening of the coals; and, by improvements being effected on the loading apparatus at the harbour, the fatigue of shipment, and consequent breakage and dust on the cargoes will be, in a great measure, avoided.

The harbour of Troon is of easy access—large and commodious; and having recently been very much improved, is capable of receiving first-class ships, of the largest tonnage, with perfect safety, in all weathers—the new basin containing 30 feet of water at the lowest ebb. The port charges are very moderate; there are also excellent graving docks in the harbour.

Agent at Troon. Mr. Alex. Paton, Duke of Portland's Colliery Office. Kilmarnock, August 2, 1848.

ASSAYING AND ANALYSIS.—Mr. MITCHELL begs to inform the MANAGERS, &c., of MINES, SMELTING-WORKS, and MANUFACTORIES, that he still continues to CONDUCT ASSAYS and ANALYSES of all PRODUCTS, metallurgical and manufacturing, at his LABORATORY,

23, HAWLEY-ROAD, KENTISH TOWN, LONDON, to which address communications are to be forwarded.—Instruction in all branches of assaying and analysis as usual.

FOURDRINIER'S PATENT SAFETY APPARATUS, for PREVENTING ACCIDENTS IN MINES AND OTHER PLACES, WHEN THE ROPE OR CHAIN BREAKS.

By the ADOPTION of this INVENTION the LIVES of the WORKING MINERS may be PRESERVED, and the PROPERTY of the MINE OWNERS PROTECTED from the serious consequences of either of the following accidents:—

1. From the men, or the load, being precipitated to the bottom of the shaft when the rope or chain breaks: in this case the apparatus is self-acting.

2. From either the men, or load, being drawn over the pulley: in this case, also, the apparatus is self-acting.

3. From the fearful consequences to men or load of a "whirl," or run: in this case the result is equally certain.

A COAL PIT, with the SAFETY APPARATUS ATTACHED to the CAGE, is daily at work near BURLEIGH, in the STAFFORDSHIRE POTTERIES.

To inspect the apparatus, or to obtain any further information, application may be made to Mr. Edward N. Fourdrinier (the patentee), Cheddleton, near Leek, Staffordshire; or to Mr. Joseph Fourdrinier, 9, College-place, Camden Town, London—who are prepared to GRANT LICENSES for the USE of the PATENT.

PATENT GALVANISED IRON AND WIRE ROPE WORKS, MILLWALL, POPLAR.

ANDREW SMITH begs to inform the Mining, Railway, and Shipping interests, that he has obtained a PATENT for an IMPROVED METHOD of GALVANISING IRON, producing a much superior article at a considerable saving in cost—the improved process for galvanising wire rope, adding only £10 per ton instead of £20, under the ordinary processes. The rope is extensively used in damp situations, for mining and railway purposes; and for ships' standing rigging.

CORNWALL NEW MINING COMPANY.—Capital £100,000, divided into 20,000 shares, of £5 each.

Deposit, £1 per share.

Three further calls, of 10s. per share, at 6, 12, and 18 months.

Incorporated in pursuance of the Statute of 7 and 8 Victoria, cap. 110.

BANKERS—London and County Bank, 21, Lombard-street.

The CORNWALL NEW MINING COMPANY is ESTABLISHED TO WORK a series of TIN and COPPER MINES, chiefly in the district of ST. IVES, which has hitherto afforded a larger profit on its return of ore than any other part of the country.

In pursuance of this plan, five have been already selected:—viz.: Georgia Tin Mine, Trewotha Tin and Copper Mine, Bray Tin and Copper Mine, Trevarno Tin and Copper Mine, and Wheal Squire Tin and Copper Mine—with whose owners the directors have succeeded in making such advantageous arrangements, as to enable them to work one or more with even a small portion of the proposed capital.

The directors beg to announce, that they are NOW ALLOTING the SHARES in the above company; and, from the number already disposed of, they request parties desiring to take shares to make early application. Those to whom allotments have been made, are requested to pay their deposits into the bankers of the company, as above.

The Deed of Settlement having been executed by the required number of shareholders to incorporate the company, parties who now take shares will not be required to sign it, or enter into any personal liability for calls or otherwise, although reserving their full rights as shareholders.

Office, 17, Essex-street, Strand.

GEO. LOCKWOOD, Secretary.

GADAIR MINING COMPANY.—At a Special General Meeting of the adventurers in the Gadaid Mining Company, held on Monday, the 7th day of August, 1848. G. W. BLANCH, Esq., in the chair.

The chairman having explained to the meeting the reason of the management not having been removed to Manchester, as proposed at the last meeting, and it being deemed desirable to elect a managing committee, it was moved and that the following gentleman be nominated to such office.—G. W. Blanch, Esq., J. Truscott, Esq., and H. English, Esq.

Resolved.—That a meeting be held on the first Tuesday in every alternate month.

An offer having been made by Mr. English of the use of his office gratuitously for the next four months, for the purposes of the company, it was

Resolved.—That the business of the company be transacted at No. 25, Fleet-street; and that Mr. English be requested to act as purser—which office was accepted—the services being rendered gratuitously by that gentleman.

Resolved.—That the company be henceforth considered as confined to 3540 shares, and that the remaining shares be cancelled.

Resolved.—That a call of 3s. per share be made on the shareholders, for liquidating the claims due on the mine—the same being payable on or before the 26th August, 1848.

Resolved.—That a call of 2s. 6d. per share be now made, for the purpose of prosecuting the mine, payable on or before 9th September next.

Resolved.—That the accounts presented this day be admitted, and that a copy of the same be transmitted to the several adventurers, with the resolutions passed at this meeting.

G. W. BLANCH, Chairman.

Resolved.—That the thanks of the meeting be presented to the chairman.

WEST WHEAL MARIA MINING COMPANY.—At a General (two-monthly) Meeting, held at the offices of the company, No. 1, St. Michael's-alley, Cornhill, on Thursday, the 10th of August.

CHARLES BAILEY, Esq., in the chair.

The following resolutions were carried unanimously:—

1. That the accounts, now presented, be received and adopted.

2. That the appearances of the mine not warranting any further outlay, the operations be immediately suspended.

3. That the committee of management be empowered to wind up the affairs of the company—to sell by public auction, or otherwise, the engine, materials, &c., and to dispose of the rest, and to pay off all liabilities of the company.

4. That legal proceedings be taken to recover all arrears of calls which may remain unpaid after the 21st inst.

5. That the thanks of the meeting are due, and are hereby given, to the committee of management.—Messrs. J. Browne, Chas. Bailey, and J. Y. Watson.

CHARLES BAILEY, Chairman.

WEST WHEAL MARIA MINING COMPANY.—PERSONS having CLAIMS against this company (which is about to be dissolved), are requested to FORWARD PARTICULARS of the same to the committee of management, at Messrs. Watson and Cunnell's, No. 1, St. Michael's-alley, Cornhill, London, that the same may be investigated and discharged.

Signed, on behalf of the committee, J. Y. WATSON.

TIMBER PRESERVING COMPANY.—(PAYNE'S PATENTS FOR THE PRESERVATION OF TIMBER AGAINST DRY ROT, FIRE, RAVAGES OF WORMS, &c.)

The above company are ready to ENTER into ARRANGEMENTS for the PREPARATION of TIMBER, at any of their under-mentioned stations:—viz.: Whitehall Wharf, Westminster | Barnstaple | Guildford | Fleetwood-on-Wyre | Leicester | Southport | Wisbech | Lynn | Hartlepool | Gateshead | Staines | Darlington |

And they will erect the necessary apparatus, wherever there is a considerable quantity of timber to be prepared.

Further particulars, with prices, may be obtained at the London Works, Whitehall Wharf, Cannon-row, Westminster.

VALUABLE INVESTMENT.—PARTNERSHIP or LICENSES FOR DISTRICTS OR ENTIRE COUNTIES.

Under British and Foreign Letters Patent.

HUTCHISON & CO'S INDURATED AND IMPERVIOUS STONE, CHALK, SAND, PEASER OF PARIS WORKS, CARTON ROOF SHEETING, AND WOOD, &c.

The produce supersedes all other building and decorative materials, for richness of effect, cheapness, and perfect durability.—Specimens to be seen at the chief offices, East Temple Chambers, 2, Whitefriars-street, Fleet-street, London; also at the Indurated Sandstone Works, Tonbridge Wells, Kent; or à la Maladrerie, near Caen, France.

All particulars afforded at H. & Co.'s offices; or of Mr. William Hutchinson, Castle Hotel, Tonbridge Wells, Kent.

PATENT ALKALI COMPANY'S IRON PAINT.—This PAINT is the PRODUCT of a PATENT PROCESS, and possesses PECULIAR and VALUABLE PROPERTIES, not otherwise attainable.

Its colour (as at present produced) is a rich purple-brown. It is perfectly free from the deleterious qualities of white lead.

It surpasses all other paints ever yet discovered, in point of durability and economy.

Two coats of this paint are more than equal to three of any other description. From its chemical composition, it is pre-eminently adapted for covering iron; also wood, and stucco, or brick buildings. The process by which the base of this paint is produced, makes it impossible that any change should take place in its composition from atmospheric influences. Its identity with iron secures it from galvanic action, so far as the durability of lead and other paints on iron work.

It has been exposed on shipping to the action of sea-water, and of the sulphureted hydrogen, so prevalent in sea-ports and tidal harbours, for more than three years, without change.

Its cheapness and strength render it peculiarly suitable for iron bridges, roofs, and railways, farm buildings, and shipping. It will also cover crooked timber.

Price, by the ton, £25, delivered in London, exclusive of packages.

Agents will be appointed for the principal towns in the United Kingdom; in the mean time, orders may be addressed to the offices of the company, No. 20, Fenchurch-street, JOHN A. WEST, Secretary.

PATENT FLEXIBLE INDIA-RUBBER PIPES AND TUBING, for Railway Companies, Brewers, Distillers, Fire-Engines, Gas Companies, Gardening and Agricultural purposes, &c.

THE PATENT VULCANISED INDIA-RUBBER HOSE-PIPS

are made to stand hot liquor and acids, without injury—do not become hard or stiff in any temperature (but are always perfectly flexible); and as they require no application of oil or dressing, are particularly well adapted for Fire Engines, Pumps, Gas, Beer-Hoses, Girders, and all purposes where a perfectly flexible Pipe is required.

Made all sizes, from 4-inch bore upwards, and of any length to order.

Vulcanised India Rubber Garden Hose, fitted with brass-taps, Copper branch and Rose's complete, ready to be attached to pump, water-butt, or cistern.

Sole manufacturer, Goswell Mews, Goswell-road, London.

N. B.—Vulcanised India-Rubber Washers, of all sizes, for joints of hot-water and steam-pipes, and Vulcanised Sheet Rubber, any thickness, for all kinds of joints, and other purposes.

LIST OF PRIZES FOR SESSION 1848-9.

THE ROYAL SCOTTISH SOCIETY OF ARTS proposes to AWARD PRIZES, of different values (none to exceed Thirty Sovereigns), in Gold or Silver Medals, Silver Plate, or Money, for approved COMMUNICATIONS, relating to INVENTIONS, DISCOVERIES, and IMPROVEMENTS in the MECHANICAL and CHEMICAL ARTS in general; and also to means by which the NATURAL PRODUCTIONS of the COUNTRY may be made more available; and, in particular, to—

I.—Inventions, Discoveries, or Improvements in the useful Arts, including the Mechanical and Chemical; and in the Mechanical Branch of the Fine Arts—such as the following:—

1. MECHANICAL ARTS.

1. Methods of Economising Fuel, Gas, &c.—of Preparing Superior Fuel from Peat—of Preventing Smoke and Noxious Vapours from Manufactories—of Warning and Ventilating Public Edifices, Private Dwellings, &c.—of Constructing Economical and Salubrious Dwellings for the Working Classes, especially in Towns—of Filtering Water in large quantities—of rendering large supplies of Water available for the purpose of extinguishing Fires; and the best application of Manual or other Power to the working of Fire-Engines—of Constructing Buildings on the most correct Acoustic principles—of applying Glass to new and useful purposes.

2. Inventions or Improvements in the Manufacture of Iron and other Metals, simple or alloyed—in the Manufacture of Writing and Printing Paper—Tuyeres for Blast-Furnaces—in the Making and Tempering of Steel—in Gilding Brass—in Artificial Pavement—in Balance or Pendulum Time-Keepers; or in Electro-Magnetic Time-Keepers—in Screw-cutting—Printing Press—in Stereotyping, and in cleaning the plaster from the Types, in Type Foundry—both for the crew and the timbers—in Curving and Towing in Leather—in Stationary and Locomotive Engines—in Railway Wheels and Axles—in Breaks for Stopping the Trains—in Railway Telegraphs and Signals—in Smith Work and Carpentry—in Tools, Implements, and Apparatus for the various trades—in Electric, Vocal, and Magnetic Apparatus.

2. CHEMICAL ARTS.

Improvements in Fine Glass for Optical Purposes, free from Vaseline, and of a Dense and Transparent quality; also, in rendering Glass hard and difficult of fusion for Chemical Purposes—in the Annealing of Glass—in the Manufacture of Writing Inks, both common and copying, so as to flow freely from Metallic Pens—in the application of Caoutchouc and Gutta Percha to new and useful purposes.

3. RELATIVE TO THE FINE ARTS.

Improvements in Patterns of Porcelain, common clay, or metal, of Domestic Articles, of simple and beautiful forms, without much ornament, and of one colour—in the Preparation of Lime and Plaster for Fresco Painting, and in appropriate tools for laying the Plaster with precision—in Engraving on Stone—in Daguerreotype, Talbotype, or other Photographic Processes—in applying such processes to Stone, for Lithographic Printing—in Electro-type Processes—in the production of White or Neutral Artificial Light by means adapted to ordinary use—in Die-sinking—in Wood-cutting, and other methods of illustrating Books to be printed with the Letter-Press, in Printing from Wood-cuts, &c.

II.—Experiments applicable to the Useful Arts.

IV.—Inventions, Processes, or Practices from Foreign Countries, not generally known or adopted in this country.

V.—Practical Details of Public or other Undertakings of National importance, not previously published.

VI.—Discovery of Substitutes for Hemp and Flax, &c.

The Society also proposes to AWARD the KEITH PRIZE, value Thirty Sovereigns, for some important "Invention, Improvement, or Discovery, in the Useful Arts, which shall be primarily submitted to the Society," between 1st April, 1849, and 1st April, 1850.

GENERAL OBSERVATIONS.

The communications and the descriptions of the various inventions, &c., to be full and distinct, and to be written on foolscap paper, leaving margins at least one inch broad, on both the outer and inner sides of the writing, so as to allow of their being bound up in volumes; and, when necessary, to be accompanied by specimens, drawings, or models. All drawings to be on imperial drawing paper, unless a larger sheet be requisite. The drawings, and the letters or figures of reference, to be in bold lines, or strongly coloured, so as to be easily seen, at about the distance of 20 feet, when hung up in the hall of meeting.—The Society to be at liberty to publish in their Transactions copies, or abstracts, of all papers submitted to them. All models, drawings, &c., for which prizes shall be given, to be held to be the property of the Society; the value of the model, &c., being taken into account in fixing the amount of the prize.

Communications, models, &c., are to be addressed to James Tod, Esq., the secretary, 35, Great King-street

BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

This important combination of the science and talent of the kingdom met, for general business, at Swansea, on Wednesday, the 9th inst., when, at eight o'clock in the morning, the library of the Royal Institution, which was appropriated as a reception room, was opened for the issue of tickets of membership, and enrolling the names of new members of the association. A large number of visitors, including many distinguished names, as well as the *élite* of Swansea and its neighbourhood, enrolled themselves as members; and, at the close, it was found that 575 new members had enrolled—149 being ladies. It is a justice due to the local committee to state, that the arrangements for obviating the difficulties always attendant on a large ingress of visitors were most complete, and proved every way effective. The meeting of the general committee took place in the theatre of the Royal Institution, at one o'clock—Sir H. H. INGLIS, Bart., in the chair, when the secretary read the usual report; and, from the statement of accounts, it appeared that the receipts for the past year had been 17,067. 2s. 8d., and expenditure, 17,152. 10s. 6d.: leaving 97. 10d. to the debit of next account. In the afternoon, about 220 gentlemen sat down to dinner, provided by the Committee of Arrangements—the Marquis of NORTHAMPTON in the chair—after which, the first general meeting of the association was held in Park-street Chapel, at which there was a brilliant attendance, a large proportion being ladies. Sir H. H. INGLIS took the chair, and the meeting was addressed by the chairman, the president elect, the Marquis of Northampton, W. R. Grove, Esq., Sir H. De la Beche, Mr. Taylor (the treasurer), Professor Phillips, &c.; and Mr. Vivian, M.P., invited the members to visit the grounds of Singleton. It was announced, at the adjournment of the meeting that 482 had been subscribed.

The real business of the association commenced on Thursday, the 10th inst., by the reading of papers and by discussions in the various sections; though, as usual on the first day, the subjects were not of first-class importance, and many of the sections concluded their business before the usual time for adjournment. The sections were well attended. The following is a list of the presidents and vice-presidents appointed to the different sections:—

SECTION A.—MATHEMATICAL AND PHYSICAL SCIENCE.

PRESIDENT—Lord Wrottesley.

VICE-PRESIDENTS—The Dean of Ely, Rev. Dr. Whewell, Lord Adare.

SECTION B.—CHEMICAL SCIENCE, INCLUDING ITS APPLICATION TO AGRICULTURE AND THE ARTS.

PRESIDENT—R. Phillips, Esq., F.R.S.

VICE-PRESIDENTS—W. R. Grove, Esq., F.R.S.; Dr. Faraday, F.R.S.; Dr. Percy, F.R.S.; John Dillwyn Llewelyn, Esq., F.R.S.

SECTION C.—GEOLOGY AND PHYSICAL GEOGRAPHY.

PRESIDENT—Sir H. T. De la Beche.

VICE-PRESIDENTS—G. B. Greenough, Esq.; the Dean of Llandaff; the Dean of Westminster; Sir P. Egerton, Bart.

SECTION D.—ZOOLOGY AND BOTANY.

PRESIDENT—L. W. Dillwyn, Esq., F.R.S.

VICE-PRESIDENTS—L. L. Dillwyn, Esq., F.G.S.; W. Spence, Esq., F.R.S.; G. Bentham, Esq., F.R.S.; D. Wallish, M.D., F.R.S.

SUB-SECTION—ETHNOLOGY.

PRESIDENT—R. G. Latham, Esq., M.D.; Rev. J. M. Traherne, M.A., F.R.S., and S.A.; Dr. C. Meyer.

SECTION F.—STATISTICS.

PRESIDENT—J. H. Vivian, Esq., M.P.

VICE-PRESIDENTS—Sir C. Lemon, Bart., M.P., F.R.S.; T. Tooke, Esq., F.R.S.; Lieutenant-Colonel P. H. Sykes, F.R.S.

SECTION G.—MECHANICAL SCIENCE.

PRESIDENT—The Rev. Professor Walker, M.A., F.R.S.

VICE-PRESIDENTS—J. Glynn, Esq., F.R.S.; J. S. Russell, Esq., F.R.S.; Ed. J. Taylor, Esq., F.R.S.

In the chemical section, the presence of Dr. Faraday, and his frequent observations on points referred to him on electrical science, gave special interest. The first subject, was a report on colouring matters, by Dr. SCHUNCK, which was, in addition to former reports by the same author, on the colouring property of madder, and contained an elaborate analysis of the component parts of the root. The extractive matter in the root consists of seven substances, only one of which is valuable for its colour—viz.: the alizarine; all the others not only do not add to the colouring property of the madder, but are absolutely injurious to it; and the effect of employing lime in dyeing with madder is to destroy, or neutralise, the effects of the other products. Potash, or other alkalis, would have an equally good effect; but, as lime is more economical, there would be no advantage in their use. After the report had been read, a discussion arose whether it be possible to give greater permanence to madder lakes, which are so valuable to the artist, and yet so evanescent. It was suggested that, as Dr. Schunk had discovered that the alizarine is the only colouring matter, it might be practicable, by operating with that substance distinct from the others combined with it in the root, to obtain a permanent colour.

Dr. L. PLAYFAIR said, that the results of Dr. Schunk's experiments had been so recently known, that it could not be ascertained to what extent they were practically useful; and Mr. R. Hunt, the secretary of the section, held out the hope that madder lakes might be protected by varnish of some kind or other. It had, he said, been determined by Sir John Herschel, by subjecting vegetable colours to the action of the spectrum, that each colour is destroyed most readily by its complementary colour. Thus green is the complementary colour of red, for both being mingled together would form white light; and if a green colour be exposed to the red ray of the spectrum, the colour is quickly destroyed. This effect, however, does not take place if the thinnest possible coat of varnish protect the colour.

A paper read by the Rev. Mr. Exley, "On the Passage of Electric Currents through circuits of Wire," gave occasion to Dr. FARADAY to state, in his felicitous manner, the actual condition of knowledge respecting the nature of electricity. Each hypothesis, whether it considered electricity as one fluid, or two fluids, or more, or whether it was an undulatory movement imparted to matter, could, he said, be equally well supported. Though at one time he had made up his mind on the subject, the more he studied it the more he became open to conviction. He was disposed, indeed, to think that electricity consists of two forces acting in opposite directions, but of the nature of these forces he must admit his complete ignorance.

In the geological section, which is usually the most attractive, there were few papers of interest.

Capt. IBBETSON, who had paid much attention to the geological structure of the Isle of Wight, read a valuable paper, "On the Position of the Chlorite Marl, or Phosphate of Lime, in that Island." The importance of this bed of mineral guano to the agriculturist can scarcely yet be appreciated. The bed is of considerable thickness, and extends over a large portion of the back of the Isle of Wight. It contains nearly 30 per cent. of phosphate of lime—the substance which renders guano so valuable as a manure—and thus a vast source of agricultural riches is opened within easy distance. Capt. Ibbetson's examination of the green-sand formation of the island, he has come to the conclusion—opposed to that previously entertained by all geologists—that the vertical positions of the strata were not caused by any upheaving of the surface, but by a subsidence, similar to that which has produced the Undercliffe; whereby the foundation, wherein the sands rest, has been absorbed and given way, and the beds resting on it have slipped down into slanting and perpendicular positions.

The mechanical section promises this year to revive from its previous lethargic state, and the programme of its proceedings presented a more attractive appearance than the other sections.

Aug. 11.—A discourse, on the metallurgical operations of Swansea and its neighbourhood, was delivered by Dr. Percy last night, in the chapel, in Park-street, where the general meetings are held. It is well known that Swansea, on account of its convenient port, and the abundance of coal in its neighbourhood, is the place to which copper ore is brought from Cornwall, and even from Australia, to be smelted and refined, and immense works for carrying on these operations are in the immediate vicinity of the town, of the existence of which, in certain directions of the wind, there is abundance of evidence by the clouds of smoke. Dr. Percy principally confined his discourse to the operations of calcining, smelting, and refining copper; but these operations are so numerous, and the illustrations he gave were so minute, that this portion of his lecture occupied an hour and a half. It would be useless, of course, here to attempt to follow him through these details, but the principle on which the chief operations depended may be briefly stated, as they were placed by Dr. Percy in a very clear manner before the meeting. The copper ores, which contain the metal intermingled in small particles among an almost infusible rock, require a more simple process for its extraction than oxides of copper. In the former case, however, if the ore were placed in the furnace by itself, without any additional substance, the copper could not be extracted, for though the heat might be sufficient to melt the metal, it would not melt the rock, and the small particles of copper could not be liberated from the mass. To assist the fusion of the mineral it is, therefore, necessary to add some substance like limestone, for a flux, which will combine with the mineral and form a kind of glass. The ore then becomes fluid in the furnace, and the metal, by its greater specific gravity, falls to the bottom. In operating with the oxides of copper, it is necessary to expose them in a heated state to the action of substances which have a greater attraction for oxygen, and this first process is known by the name of reduction. The ore, however, goes through various processes before it is fit for refining, and in that operation there are many difficulties to be surmounted, which can be only overcome by a combination of science with practical skill. In one process, for example, called polluting, the object is to remove the suboxide of copper, which renders the metal brittle; but, if this process

be carried too far, the metal becomes still more brittle and unmanageable than at first, and the cause of this effect of over-polluting is not yet ascertained. Again, to show the difficulties which have to be overcome in the production of good copper, if there be the smallest quantity of antimony in the mass it will be spoiled. A specimen which Dr. Percy exhibited, that was estimated to contain not more than 10 ozs. of antimony in a ton of metal, was rendered, even by that small proportion, quite unfit for rolling or hammering. At the conclusion of his discourse, Dr. Percy adverted on the absence in the British empire of any college for instruction in metallurgical processes, and enforced the propriety of supplying the defect.

The Marquis of NORTHAMPTON, who presided, having thanked Dr. Percy for his discourse, called on Dr. Faraday and Sir H. De la Beche for some remarks on the subject, but they offered little more than their thanks to Dr. Percy for the able manner in which he had treated the subject. Sir Henry, in allusion to the want of an institution for instruction in metallurgy, concurred fully in the necessity of such a desideratum being supplied, observing that the mineral produce of England and Wales, even in the state in which it is raised from the mines, is valued at 23,000,000l. sterling, which far exceeds the mineral produce of any other country, not even excepting the gold mines of Russia.

At the sections this morning there was an ample amount of papers to be read, and some of them of considerable interest. In the mathematical and physical section, a paper on "The Effect on Sound of the Rapid Motion of the Observer," by Mr. J. S. Russell, presented some very curious facts. It has been observed that, during rapid motion on a railway, any sound—the ringing of a bell, for instance—is heard much more loudly as the hearer advances towards it than it would do if he were stationary at equal distances, and that in passing away from it the sound more rapidly diminishes. The former effect is caused by the ear receiving a greater number of vibrations by meeting them as they are impelled from the bell, and the opposite effect on departing is produced by the hearer passing away in the same direction as the impalaitions on the air; so that we may suppose if a person were moving from a cannon at the instant of its firing at the same velocity with which sound travels, he would not hear the report. Mr. S. Russell also noticed the effects of the sound produced by the motion of railway carriages at great velocities, especially when passing through tunnels; and he remarked, that if the velocity could be raised to upwards of 100 miles an hour, the discordant noise of the train would be converted into a musical sound.

Mr. PRICE, an extensive ship builder, explained a plan which his firm had adopted in the construction of steam-engines, that had hitherto been kept secret, but which he now disclosed as a contribution to the British Association. It had been adopted on a small vessel, called the *Neath Abbey*, with the greatest success. The plan was this:—Tubular boilers for generating high-pressure steam were employed, but instead of puffing away the steam against the resistance of the atmosphere, it was admitted into a condenser, which was kept cool by a number of tubes, through which the water flowed as the vessel moved. This dry mode of condensation permitted the water from the condensed steam to be again pumped into the boiler, and thus the annoyances arising from the use of sea water in the boiler were obviated, and a constant supply of fresh water was afforded, with scarcely any addition to the original stock being required. The piston of the engine, which worked a three blade propeller, might be made to go at a rate of 620 ft. in a minute, though their ordinary working speed was much less.

The geological section was occupied for a long time by the reading of a paper by Sir H. De la Beche, "On the Geology of Portions of South Wales, Gloucestershire, and Somersetshire." The paper was an abridgment from the official reports, already published by Sir H. De la Beche, on this subject, and was well adapted for the present meeting. To this paper succeeded two by Mr. BENSON, "On Peculiarities of the Coal in the Coal-field of South Wales." In the first of these Mr. Benson showed the same bed of coal to possess different properties in different parts of the district. In the southern part it was bituminous; more northerly it becomes what is termed free burning coal, with a smaller portion of bitumen; and further north, it was converted into anthracite. These differences in the quality showed that the same vein of coal had been subjected to the action of heat to a greater degree in the northern part of the district than in the southern. The notice of a large water-worn boulder of cannel coal in the midst of a vein of bituminous coal in this district, formed the subject of Mr. Benson's second paper. A paper, very appropriate to the proposed morrow's excursion to Gower, on "Fossil Remains recently Discovered in Bacon Hole, Gower," was read by Mr. BATE, one of the local committee.

Aug. 12.—In the opening of the mechanical section, Mr. WHISHAW read his paper "On the Various Applications of Gutta Percha"; numerous specimens of which, in the shape of thread, cord, tubular pipes, driving bands, constables' staves, whips, ink-stands, medallions, shields, and other ornaments, water-buckets, stereotype plates, and sundry other articles, both useful and ornamental, were produced on the occasion. Gutta percha is the concrete juice of a large tree of the same name abounding in Borneo, &c. Its introduction into this country was purely accidental, Mr. Montgomery having transmitted the first sample of it to the Society of Arts in 1843, at which time he (Mr. Whishaw) was secretary to that society. The first articles of art made of gutta percha in this country were laid before the Society of Arts in 1844, and consisted of a lathe-band, a short length of pipe, and a bottle-case, which he had himself made by hand, having caused the concrete substance to become sufficiently plastic by immersing it in hot water. He also produced casts from medals, which attracted considerable attention at the time, and some surgical instruments were soon after made of this new material. From 20 to 60 tons are now regularly imported every month. Various experiments have been made to ascertain its strength when mixed with other matters, and also as to what pigments would mix with it without rendering it brittle; from which it appeared that the only pigments that could altogether be relied on were orange lead, rose pink, red lead, vermillion, Dutch pink, yellow ochre, and orange chrome. Under the influence of heat and pressure, gutta percha would spread to a certain extent, and more so, if mixed with foreign matters; and all the mixtures composed of gutta percha and other substances which had been subjected to experiments, except that containing plumbago, were found to increase its power of conducting heat; but in its pure state gutta percha was an excellent non-conductor of electricity. The best composition for increasing the pliability of gutta percha was that with caoutchouc tar, and, next in order, that of its own tar; and the best material at present known for moulding and embossing was obtained by mixing gutta percha with its own tar and lamp-black. Mr. Whishaw next described the process of manufacturing gutta percha. It is reduced to pulp by masticating machines, as the materials for paper are treated. It is purified with water, and pressed into sheets by rollers. Its property of becoming plastic by immersion in hot water is well known.

Mr. Whishaw next exhibited his telokouphon, or speaking telegraph. Mr. Whishaw also exhibited the gutta percha submarine rope, or telegraph, which consisted of a tube perforated longitudinally, for the conveyance of telegraphic wires, and which, for the purpose of preventing its being acted upon by sea water or marine insects, was banded or braided round by small rope, and being perfectly pliable, could easily be conveyed along the bottom of deep water.

Mr. J. SCOTT RUSSELL described some improvements in steam navigation, which he explained by appropriate diagrams. The first great improvement was in the boilers. Formerly the flues were constructed of great length, so that the smoke was kept winding round and round, and at last was allowed to escape with difficulty. Now, however, they had adopted the plan of getting as much fire as possible in the shortest possible space of time, and this had been accomplished by imitating, as nearly as they could, the locomotive engine boiler, by having tubes of thin metal, which would evaporate a much greater quantity of water in the same time than flues of the usual thickness. Now, also, instead of taking the smoke a long distance, as formerly, they use short flues of 4 to 6 ft. in length, and by having a great many of them, and of thin metal as possible, they heated the greatest quantity of water, and had the additional advantage of keeping the metal cooler, and thus a boiler of smaller extent and surface was of much greater efficiency, with less weight of metal. The next improvement was in the engine. The beam engine was changed for the direct action engine, which was of various kinds, but the greatest change which had been made within the last 10 years consisted in the employment of greater quantities of wrought-iron in the construction of the engines, instead of the mass of cast-iron formerly used. The paper also described the improvements that had been made in the paddle-wheels, the changes in the shape of the steamboat itself, and other improvements connected with this important subject.

Naturally the subject of the great coal-field of South Wales attracted marked attention. The gentleman selected to deliver an address to the geological section on this subject was WILLIAM PRICE STRUVE, Esq., C.E., of Swansea. The broad subject taken by him was the great anticlinal line of the mineral basin of South Wales, extending from Newbridge, in the Taff Valley, to Cefn Bryn, in Gower, which comprises the whole of the extensive district between the Vale of Taff and Carmarthen Bay, including Glamorganshire and portions of the counties of Carmarthen and Brecon, occupying an area of about 560 square miles. This district is intersected by six principal valleys, with canal or railway adjuncts, which convey its produce to the ports of Swansea, Llanelli, Neath, Cardiff, Portcawl, and Port Talbot. The base of the coal measures in this extensive district is carboniferous limestone, basin-shaped, and having a rise from its centre towards the north and south. The lecturer, who illustrated his views by diagrams, described specifically the various properties of different sections of this extensive coal-field, into which it is needless here to follow him. The amount of mineral wealth appears to be enormous. The various "coal measures," as they are called here, extend over 400 square miles; and the produce may be guessed at, if it is calculated that in one district alone one square mile will produce 40,000,000 tons of coal, beside 8,000,000 tons of mine, and 3,000,000 tons of blackband. The coals produced, of course, vary in quality. We have the bituminous coal, the free-burning coal, culm, anthracite

calm, and anthracite, of which the two former occupy the largest portion of the coal-field. The anthracite makes itself rather more prominent in Carmarthenshire; and on arriving in Pembrokeshire, it is found that the whole field partakes of that quality.

Mr. ROBERTS, of Manchester, exhibited and explained the construction of a mechanical contrivance, by which, in a very simple manner, movements may be effected, for which more complicated mechanism is frequently employed. The model consisted of a steel shaft, on which were loosely fitted two brass discs, having each a boss to keep it steady. One of the discs had 11 teeth (rounded at top and bottom) in its circumference, and was placed on the body of the shaft; the other disc (which was somewhat larger) was on the eccentric position of the shaft, with its face to that of the toothed disc; the plain disc had four studs riveted into it at equal distances from each other, and at such distance from its centre as to admit of their being brought successively by the revolution of the eccentric to the bottom of the hollows in the toothed disc. The following movements may be effected by this model—viz.: if the shaft be held stationary, and the disc be made to revolve upon it, one of the discs will make 12 revolutions, whilst the other makes only 11. Again, if the toothed disc be held whilst the shaft be made to revolve 12 times, the plain disc will revolve in the same direction one revolution only, and if the plain disc be held, the toothed disc will perform one revolution in the contrary direction, for 11 revolutions of the shaft. It will be evident that almost any other number of revolutions may be produced, by employing a smaller number of studs, not fewer than three, which will not divide the number of teeth in the disc. The idea of this novel element of mechanism was, it is stated, suggested to Mr. Roberts by a dial movement in an American clock. The discussion of this new element of mechanism excited very great interest, and it was stated in the room that it was likely to lead to very important results.

Mr. STRUVE read a paper, "On the Ventilation of Collieries," with a description of a new mine ventilator. The paper commenced by describing the ventilation of collieries, to be produced by large furnaces being placed at the bottom of the upcast pits, the rarefaction created thereby causing the air to ascend, a similar quantity descending the downcast pits. The great objections of this system were the variations, which arose from the neglect of the furnaces, as also from barometrical and thermometrical changes in the atmosphere. The paper next described the great destruction which arose to the flat chains, flat ropes, and cast-iron tubing of an upcast pit, causing larger annual expenditure. It proposed, as a remedy for these evils, a new mine ventilator, worked by a 5-horse power engine, which had been invented and patented by the author, calculated to extract from a mine an unlimited quantity of air. This was accomplished by converting the whole area of the upcast pit into an air channel, connected with the ventilator by means of a culvert of similar size. The ventilator consisted of two large air-chambers, something like gasometers, moving up and down in water contained in a tank, constructed of masonry. The chambers balanced each other, and were surrounded with external cases, so as to form double pumps. The inlet and outlet valves, when opened, presented the same amount of area as the upcast pits for the ingress and egress of the air, so that the only resistance to be overcome in ventilating the mines was that which arose from the friction of the air in the passages of the mine, and in the parts of the apparatus, and which would be of small amount. There was a mine ventilator on this principle now in the course of construction at the Eagle's Bush Colliery, calculated to pass through that mine 40,000 cubic ft. of air per minute, and the cost of erecting the ventilator would not exceed 1000l. [The invention of Mr. Struve was fully described in the *Mining Journal* of the 11th December last.]

Most of the members joined in the excursions which had been planned, to view the natural beauties, and the metallurgical works and mines, in the neighbourhood. By far the most numerous party went up the Swansea Valley, for a distance of about 18 miles, and, on their way, stopped at the Ystalyfera Iron-Works, conducted by Mr. J. P. Budd, who has introduced some new and important alterations in the mode of working. When the party arrived at the works, there were three blast furnaces ready to be "tapped," and the immense mass of red-hot fluid metal flowed, in a steady stream, into the numerous channels formed in sand, on the floor, for its reception, throwing out a roasting heat to a considerable distance. The mode adopted by Mr. Budd of rendering available the heated gases that usually escape from blast-furnaces was explained, and illustrated by inspection of the furnaces and of the apparatus employed for forming the hot blast. The heated gases, instead of being allowed to escape, are conducted through horizontal passages at the top of the furnaces, and thence into a stove containing a series of pipes, through which the compressed air that makes the blast is conducted. In these pipes, the air is heated to a temperature of about 800°, and after the heated gases from the furnace have done their work in the stove, they are, by a recent improvement, conducted under the boiler of the steam-engine, and act even more efficiently in getting up the steam than burning coals. By this means the whole expense of fuel generally employed in heating the air, and in working the steam-engine to compress it, is saved. The extent of this saving in all the iron-works of the kingdom, if adopted, would, Mr. Budd said, amount to 6,000,000 tons of coal annually, equal to an average cost of 1,200,000l. In addition to this, there would be a great saving in the wear and tear of the tubes and boilers; for the hot air does not corrode the iron against which it acts. The heated gases from the furnaces, notwithstanding all this work, are still allowed to escape, without being consumed; for they contain a great quantity of combustible matter that would burn if supplied with oxygen

It was stated, in the course of discussion, that should this plan be found to answer, unlimited speed might be obtained; it could traverse the sides of roads without frightening horses, go through towns, and by means of side-wheels, &c., go round such curves, at a high rate of speed in perfect safety, which were now impassable. It was also observed that the great obstacle to a railway across the Isthmus of Suez was, that it would be speedily blocked up with sand, which difficulty this covered way would entirely obviate.

Mr. EATON HODGKINSON read a paper entitled "Investigations undertaken for the purpose of furnishing data for the construction of Mr. Stephenson's Tubular Bridges at Conway and the Menai Straits." Mr. Hodgkinson commenced by acknowledging that to Mr. R. Stephenson is due all the merit of the invention of the tubular bridges, and that himself and Mr. Fairbairn were employed by that gentleman to carry out his designs by making experiments on a great practical scale. Some of the various experiments undertaken, and their results, were mentioned, but the formulæ deduced from them were merely exhibited, as they will be published in the *Transactions of the Association*. In trying the transverse strength of wrought-iron, it was found that the upper part of the tube wrinkled before it broke; and then Mr. Hodgkinson thought of giving increased strength by placing a number of small tubes at the top of the larger one. This mode was adopted with advantage, and the tubular bridge was constructed with rows of cells at the top and at the bottom. It was ascertained that a tube so constructed would safely bear 8 tons on the square inch, and even 12 tons might be placed on it without much danger, though the metal sometimes crimped up at that pressure. In the experiments, it was found that circular tubes withstood more weight than square ones, though for several practical purposes it was deemed best to adopt the rectangular shape. The form of the tube was not, however, finally determined till February in last year. In the bridge, as constructed, it would require a weight of 1084 tons, including its own weight, to produce a pressure of 8 tons to the square inch.

In the same section Mr. BUDDE described the process adopted at the Ystalyfera Iron-Works, of applying the heated gases that escape from the furnaces, which plan those who accompanied the excursion up the Swansea Valley had an opportunity of witnessing in practical operation, as before mentioned.

After the business in the various sections had closed for the day, the general committee met, by adjournment, to appoint the next place of meeting. Numerous letters of invitation, from the public bodies and societies in Birmingham, were read, and that town was unanimously selected for the next meeting, which is to be held some time in September. Invitations from Bath, Ipswich, and Derby, were also read. Dr. Robinson, of Armagh, was appointed the president of the next meeting; and the Earl of Harrowby, Lord Wrottesley, Mr. Darwin, Prof. Faraday, and Professor Willis, were appointed vice-presidents. The treasurer and secretaries were re-appointed, as a matter of course.

In the evening, Dr. CARPENTER delivered, in the place for holding the general meetings, a discourse on recent microscopic discoveries. Great varieties of beautifully executed drawings of objects, as magnified by the microscope, were exhibited, to form illustrations of the subject. The discourse was listened to by a large audience.—At its termination, Dr. MANTELL was called on by the President, and he added to Dr. Carpenter's account of the formation of chalk, that the bodies of the animaules which inhabited the shells composing the chalk, are still enclosed within them—being the mummies of a former world.

One of the most interesting of the excursions was that to Penllergare, the mansion of J. D. Llewellyn, Esq., distant about five miles from Swansea. The favourable weather made the drive to and fro, and the promenade in the grounds and on the shores of the lake truly delightful. A boat, which was impelled by the electrical current, was, however, the principal object of attraction. It was not constructed for the purpose, but was the boat ordinarily used on the lake for pleasure, capable of conveying about six persons. In the bow of the boat a galvanic battery was placed, which, having connecting wires, with a small retort filled with mercury at the stern, enabled the professor, who steered the boat, to connect or disconnect the circuit of the fluid as he pleased. Near the centre was a solid cylinder, constructed of wood, but bound with copper, which revolved on its axis, and from which electric sparks were freely emitted. This cylinder was in a state of continuous revolution, and with the cylinder a rod was connected, which caused the fans placed at the stern of the boat to revolve. The application of electric locomotive power is, doubtless, a question of great interest, but it is chiefly a question of expense and speed combined. The boat is ordinarily paddled from the stern, with one oar; its progress is slow as compared with that of the Thames wherries; the battery required to work it is a powerful one, and yet the progress which it made in its excursion round the lake was not swifter than that which it would make with ordinary paddling. At present it is a scientific toy; but it clearly establishes the principle that electricity can be converted into a motive-power for the propulsion of vessels, thereby saving the space at present occupied by the engines and fuel; and, as the power can be indefinitely increased so as to meet the required speed, the sole question is one of expense.

Aug. 15.—In the mathematical and physical section, Prof. PHILLIPS read a report of the progress of anemometrical researches; in which he described his further experiments with a new anemometer, constructed on the principle of evaporation. Owing to the mechanical difficulties which prevent the attainment of accuracy in measuring the force of wind at low velocities by the common instruments, Mr. Phillips conceived that the rate of evaporation might afford a better gauge of the velocity of the wind than mere impact. He tried various experiments with two thermometer bulbs, the one being wetted and the other dry; and from the reduction in temperature of the mercury in the wetted bulb by evaporation, he endeavoured to obtain some approximate results. The experiments were, to a certain extent, satisfactory, and showed that the principle is capable of being applied as a measure of the velocity of wind, but still they were not of such a nature as to be always depended upon. Mr. Phillips observed a remarkable, and hitherto unaccountable, variation previous to a change of weather; he then proceeded to improve on the instrument, by causing the wind to act on a nicely balanced vein, the arms of which were 3 ft. long, and at the ends of which were placed hemispherical cups, containing water. The least breath of air was sufficient to give rotary motion to the vane. With a brisk wind it rotated rapidly, and thus became exposed to the evaporating action of the air in much greater degree. The instrument is not yet perfected, but Mr. Phillips hopes, after further trials, to render it a sensitive and accurate measurer of the velocity of the wind.

In the same section, Sir D. BREWSTER mentioned some curious facts relative to the vision of objects during rapid travelling. On looking out of the window of a railway carriage, for instance, if the eye be fixed on a row of stones, or of pailings, the image seems confused, and to be rapidly moving away; but if the axis of the eye, be suddenly turned to some nearer spot, then the stones, or pailings, are for an instant distinctly seen stationary. Sir D. Brewster said, he could not yet account distinctly for the phenomenon. Dr. Whewell, and other members, mentioned similar instances of optical illusions, with a view to explain the cause, but Sir David was of opinion that the cases mentioned were not parallel.

In the chemical section, Dr. PERCY read a valuable paper, detailing experiments concerning the extraction of silver from some of its ores in the wet way; but the results of minute analysis and technical descriptions of the chemical processes, however useful when in print, presented no features to attract an audience. Dr. Percy stated, that some silver ores, containing as much as 30 per cent. of silver, had been sent to Swansea, from South America, to be smelted, and South Wales might in time become as celebrated for its silver works as it is now for its copper works.

The geological section was occupied for a long time with the reading of a paper, "On the Geology of Pennsylvania," by Prof. Rogers, from America. The slow imperturbable manner with which Dr. Rogers proceeded, indicated the great length to which his discourse would run. It was illustrated by numerous drawings; but Mr. Lyell has so fairly described the geological features of the country in preceding years, as to completely exhaust the subject. The American tendency to exalt the merits and products of his own country was very evident in Prof. Rogers, who stated that the iron annually obtained in the state of Pennsylvania amounted to 700,000 tons, which exceeded the produce of the whole of South Wales.

In the mechanical section, Mr. F. WHISHAW exhibited and explained his uniformity of time telegraph. In this telegraph two chronometers are employed, which must be regulated so as to keep time exactly together, one at each station. The second hand is prolonged, and as it moves round, it points at each second to some sentence printed round a dial, through the centre of which the second hand appears. In transmitting a message to a distance, it is requisite there should be a communication by an insulated wire, for the purpose of transmitting instantaneous signals by electricity. Thus, when the hand of the chronometer points to a question required to be answered, the operator instantly completes the electrical circuit, and by that means strikes a bell at the distant station. The operator at the distance, being on the alert to watch, observes the question to which the hand points, since both hands as they move round are supposed to be pointing to exactly the same sentences. He then answers the question, if it be contained on the dial, by a similar process, and in two minutes' time a question and answer might thus be transmitted. As various codes are printed on moveable dials, containing a vast variety of subjects, it is supposed that by this means the purposes of telegraphic communication might be easily effected. The difficulties to be encountered will be the exact regulation of the chronometers, which might be done by electric signals, and the quickness of observation and action required in the operators.

[To be continued in the Mining Journal of next week.]

LEEDS AND THIRSK RAILWAY.—On Monday last trial trips were made on a further portion of this line—namely, Wormald-green, near Ripon, to Starbeck, on the highway from Harrogate to Knaresborough, and it is expected to be opened for traffic during this month. The viaduct on this line, at the Crimple Valley, is rapidly approaching completion, when a further distance, extending to Wootton, near Harewood Bridge, will be ready for opening.

X WALKER'S PATENT HYDRAULIC ENGINE.

This new engine, for draining or irrigating lands, may be seen at work at Mr. Walker's factory, City-road, any day, raising 7000 gallons of water per minute, 4½ feet high. It is intended for the drainage of an estate of 500 acres, in Norfolk; and when it leaves the factory, will have two steam-boilers, 15 feet long and 3½ feet diameter, which will enable it to discharge 6000 gals. a minute, or 4,320,000 gallons a day, 10 feet high, at a daily working cost of about 12s. 6d. per day—the original cost being from 6000l. to 6500l.

Q is the water cylinder, the piston of which works in the water contained in a quadrangular iron well, resting on the frame, A, and covered by the framework, E, not all shown. The well has three openings, one in front, and one on each side, fitted with sluice doors, hinged on their upper edges—one or more of which can be opened or closed at pleasure. On the upper flange of the well rests a strong frame of timber, E E, from which stays pass down to the foundation timbers, and give stability to the superstructure. Upon the frame, E E, are erected cast-iron framed standards, F F, secured to the well, by nuts and bolts passing through the frame, E E.—The standards, F F, are in two heights, and upon a flooring at g g, there are two steam-cylinders at H— one only seen—with pistons, each of which is connected by two piston-rods, h h, to its respective crosshead, I. From a bolt in the centre of the crosshead, I, which works in guides in the side framing of the standards (not shown in the figures), a connecting-rod passes up to a crank on the outer end of the shaft, which shaft carries a fly-wheel, L. From the outer ends of the crosshead, I, two connecting-rods, M M, pass down to a large crosshead, N, beneath the steam-cylinders; from this crosshead two other rods, n n, pass down, and are bolted to a cruciform platform, o o. Upon the platform, o o, are bolted four upright iron-rods, p p p p, the upper extremities of which support a valved piston. Immediately beneath the steam-cylinders, and supported by their upper flanges, upon the frame, E E, are two water-cylinders, Q, open at the bottom, and having at top a valve, opening upward. Upon the upper flanges of the water-cylinders, Q, is bolted a valve-box, R, communicating by an exit-main, s, with what is termed a dividing-box, S, furnished like the well before described, with doors on each side, and in front capable of being opened and closed at pleasure. On the top of the valve-box are covering plates, r, the removal of which gives access to the cylinder-valves. Steam from a boiler is admitted through the induction-pipe to a slide-valve, T, placed beneath and between the steam-cylinders, by means of which the steam is admitted alternately to the bottom of each. The slide-valve, T, is worked by an eccentric, on the crank-shaft. The steam-cylinders, H, are fitted with cones, through which the piston-rods, h, work; the hot-air passing from the upper part of one to the other through an air-tube, as the pistons alternately rise and fall. After leaving the cylinders, the waste steam passes from the slide-valve, T, along the induction-pipe, through the water-box, Z, whence it passes into the pipe, z z, which may be led into a chimney, or other convenient outlet. The cold water, raised by a pump, flows into the upper part of the water-box, Z, and into the tubes, which descend nearly to the bottom thereof, where it becomes heated (by the steam passing through the box), nearly, or quite, to the boiling point, in which state it is forced into the boiler by the feed-pump.

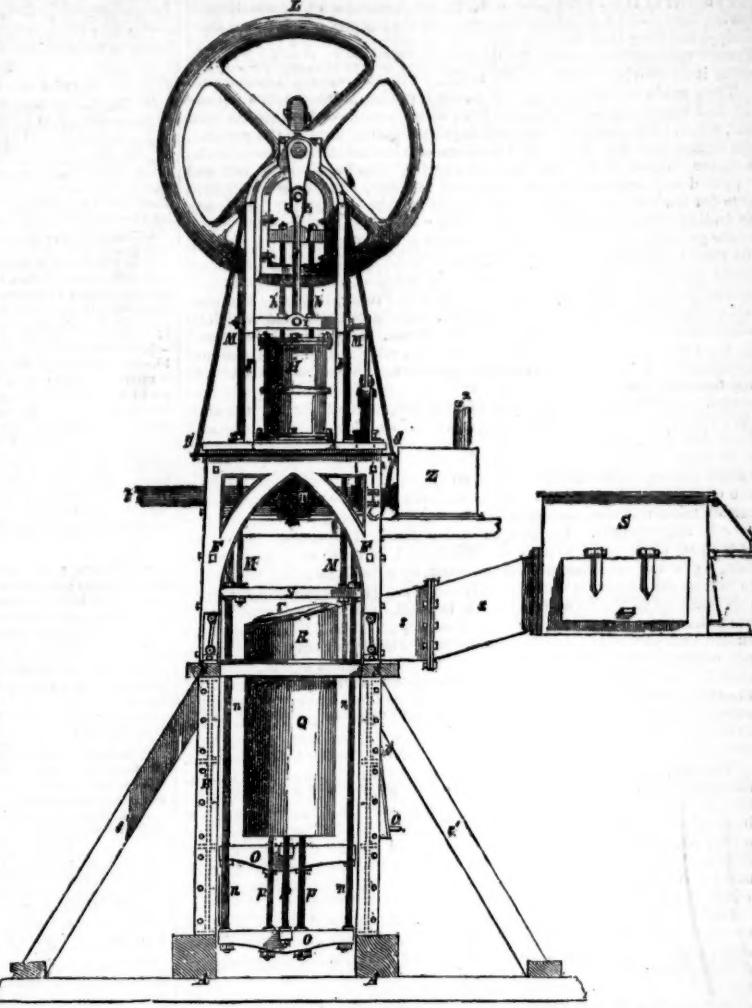
The following is the *modus operandi*:—The steam in a boiler being at a pressure of 25 lbs., or thereabouts, upon the square inch, is admitted to the slide-valve, T, through which it passes into one of the steam-cylinders beneath the piston that happens to be in the position for making the upward stroke. The pressure of the steam raises the piston, which, by means of the piston-rods, h h, crossheads, I and N, and connecting-rods, M M, and n n, already described, lifts the valved piston, and expels any air or water that may be above it, through the valve at the top of the cylinder, Q. The opposite steam and water-pistons at the same time descend, by virtue of their connection with the crank-shaft; the air, or steam, beneath the steam-piston, escaping through the induction-pipe to the waste steam-pipe. On completing the stroke, the movement of the slide valve reverses the ports and admits the steam into the other cylinder—the piston of which is in like manner raised; and the water that is now above the second piston is thrown forcibly upward through the valve at the top of the cylinder, and passes off by the exit-main, s, to the dividing-box, S; by this movement, an ascending current of water is generated in the cylinder; and when the motion of the piston, P, is reversed, and it begins to descend, its valves open; and the upper current of water, generated as before described, passes through the valve, until the piston, P, has traversed a greater or smaller portion of its downward stroke, according to the momentum acquired by the water, which will be in proportion to the velocity with which the piston travels.

When the engine is employed for draining land, one or more of the sluice doors are opened, communicating with the drains from which the water is to be taken. The side doors of the dividing-box, S, are closed, and the front are opened, communicating with the channel, by which the water is to be got rid of. On the contrary, if water is to be raised from a river, or other external source, and thrown into the ditches for irrigation, or other purposes, a different sluice-door of the well, communicating with the river, is opened, and those communicating with the drains shut. The front sluice of the dividing-box, S, is also shut, and the side ones, leading to the drains, or ditches, opened. By thus regulating the sluices, the engine can be employed to lift water out from, or into, the land at pleasure. In erecting this machine, it is to be observed, that the lower orifice of the water-cylinder, Q, should not be higher than the lowest part of the drain, from which the water is to be taken, as the machine ceases to raise the water, when it falls below the bottom of the cylinder.

[The *Mechanics' Magazine* of last week contains a very lengthy description of Mr. Walker's engine, from which the above notice is abridged.]

X VICTORIA MINE, DERBYSHIRE.—At the Barmote Court, Wirksworth, on Wednesday last, the 16th inst., held before W. E. MOUSLEY, Esq., Steward, in the case "Fearn an Infant by his next Friend v. Spencer and Partners." The plaintiff claimed title to one-half of Ball Rake, afterwards entered Victoria Mine, under a variety of changes of title to Gould and others; and from the Gould's ultimately to the plaintiff, an infant (who sued by his next friend). Benjamin Tomlinson was called, who proved himself to be the original owner of the mine; that he then transferred certain interests in it to Gould and others, and two pieces of paper were put in, signed by marksmen, to show the title under which the present plaintiff claimed. This was objected to by Mr. HODGKINSON, on the ground that the two pieces of paper were not stamped according to the Stamp Act, when a long argument took place between Mr. MACQUEEN and Mr. HODGKINSON, as to the mineral customs, and the laws relating to stamp duties, and several cases were cited showing the dicta of the Lord Chief Baron upon the subject.—At the conclusion of these arguments, the STEWARD said he must nonsuit the plaintiff from the evidence adduced, on the ground that any interest passing out of lands or hereditaments from one person to another, must, according to the statute of frauds, be in writing, and, being in writing, it was necessary that the papers produced should be duly stamped, as a transfer of such interest. The Legislature having wisely provided by a statute, to prevent frauds and injuries, that all transfers and conveyances of lands or hereditaments or interest in lands should be duly stamped, according to the provisions of the Stamp Act, to prevent a fraud upon the revenue. The STEWARD, however, said that although he directed a nonsuit in the present cause, he would grant a new trial, to enable the parties, if they thought fit, to further investigate the question at issue, and the costs of the present cause should abide the event of such new trial, if presented without delay.

X COPPER DUTIES.—In the House of Commons, on Monday, Lord G. BENTINCK presented a petition from the miners, traders, and artisans connected with one of the largest mines in Cornwall, complaining of the present position of the copper trade as one of great depression—the price of copper having fallen 25 per cent. below the average of 15 years; and praying that the bill pending before the House for altering the copper duties might not pass, as it would reduce the petitioners, and all persons connected with copper mining, to utter ruin.



EXPLOSIONS OF GAS IN METALLIC MINES.

The explosions of gas, unfortunately so frequent in coal mines, have not, heretofore, been mentioned, at least to my knowledge, in metalliciferous deposits. I, therefore, publish a record of several accidents of this kind which have happened in the metallic mines of Alsace. One of these mines—that of Gundershoffen (Lower Rhine)—was sunk upon a deposit of piemontite iron ore; the bed of the ore, which is situated at the depth of 19 metres (62½ yards), lies upon the marls of the upper lias. After several inflammations of the gas, without serious consequences, one occurred, in 1824, which severely burned several of the miners. At Winckel (Upper Rhine), in a deposit similar to the above, but resting upon the upper beds of the Jurassic limestone, an explosion took place in 1832, and another inflammation, much less violent, on the 27th of June, 1846. Finally, the gas also took fire in March, 1846, in the veins of copper pyrites worked near Giromagny. From the circumstances mentioned in the notice, which I have the honour to present to the Academy, it appears that the inflammable gas of these iron mines, is the proto-carbure of hydrogen, which, in the two first localities, emanated from certain bituminous beds of the lias and oolite, upon which the deposits of Gundershoffen and Winckel rest, and rose through fissures in the works. At Giromagny, the gas probably came from the transition strata which enclose the vein.—M. A. DUBREE: *Comptes Rendus de l'Acad. des Sci.*

ACCIDENTS.

Colliery Explosion—Fifteen Lives Lost.—It is our painful duty to report that a melancholy accident occurred at about one o'clock on Tuesday last, by an explosion in Polka Pit, at Murton, near South Hetton, about 10 miles from Sunderland, by which 19 men and 3 boys have lost their lives. Another boy is so much injured that he is not expected to recover. One horse and two ponies were also killed. The pit had been laid off work for about six weeks, from an overflow of water, and had resumed working about a week previous to the accident. Upwards of 100 men and boys were in the mine at the time of the explosion. The explosion was heard, but not seen by any other of the workmen in other parts of the mine, who are unable to state (so far as we can learn) under what circumstances it took place. Had the explosion been general in the mine, the whole of the workmen must have suffered. One of the underwives, on hearing the explosion, immediately proceeded down the pit, and towards the place where it happened, with a view to extricate the sufferers. He was suddenly attacked by the choke damp, and was instantly overpowered and rendered insensible. Other persons by whom he was attended drew him back, and had him taken out of the pit. He remained in a doubtful state till next morning, when a favourable change took place, and is now in a fair way of recovery.

Old Park Colliery, Dudley.—E. Woodhall was killed by a fall of coal.

Shut End Colliery, Kington-in-the-Forest.—B. Glazebrook had the spine of his back injured by a fall of stone.

Stowbridge.—A young man, named John Rollason, residing at Posenett, and employed at the works of Mr. Gibson, of Shut End, as an engineer, met with a singular accident on Tuesday last, by which he very narrowly escaped death by strangulation. It appears that he was following his customary employment, when his neckerchief, which was loosely round his neck, was caught by the lathe attached to the engine, and drawn up tightly—very nearly producing suffocation, and preventing his giving an alarm. Fortunately, one of the workmen had occasion to enter that portion of the works soon after the accident, and seeing the position of the engineer, immediately ran to him and severed the neckerchief with a chisel. A few moments longer duration of the dangerous position in which he was found, would necessarily have proved fatal. His neck was found to be much cut and swollen, but, under careful medical treatment, he is expected to recover. —*Birmingham Journal.*

Tividale Colliery, Dudley.—H. Walton was killed by a fall of coal.

The Lost Men in the Inundated Coal Mines.—There are now some hopes of these unfortunate men being found; for, on yesterday week, the workmen employed at the Patricroft Colliery, in prosecuting their search in what is called the "Jig-up-Brows," found four of the lamps at the distance of 307 yards from the pit eye, where two of the Jigs meet. The lamps had not been wet, and were empty, with the exception of one that contained a small piece of wick. It is supposed that, at this point, they had replenished their remaining lamps with the contents of those left behind, and then continued their course up the Jig-up-Brows—the entrance to one of which they had barricaded by pulling up the tram-rails and propping up the roof, &c.; and it is at the top of this Jig-brow that the bodies of the unfortunate men are expected to be found, as it does not appear that the inundation had reached to any extent beyond the entrance of the Jig that they had barricaded. —*Preston Chronicle.*

Debdale Quarry.—As W. French was boring a hole immediately under the chain which lifts the wagons up the quarry, the chain snapped, and, in falling, struck him on the head before he could get out of the way, and killed him on the spot. The chain was considered to be perfectly strong and safe. The jury recommended that the chain used for the purpose above-mentioned should be more frequently examined by some one appointed for that purpose.—*Penzance Gazette.*

X LIGHTING THE NEW HOUSES OF PARLIAMENT.—On Thursday night, experiments for the purpose of testing a new system of gas burners, with which it is proposed to light the interior of the new Houses of Parliament, were made in Trafalgar-square, before a committee, and Mr. Barry, the architect. A branch, containing eight burners for consuming common gas, was introduced into the reflector at the south-east corner of the square, and which threw a most brilliant light, by which small print could be read at 40 paces. The result was considered satisfactory.

X ABERDEEN RAILWAY.—We are glad to hear that the contractors on various parts of this line have received instructions to proceed with the works, and we have no doubt they will be generally resumed, as we have already intimated, without unnecessary delay. The opening of the Scottish Midland, and the completion of the entire through route from London, ought to operate as a strong stimulant to proceed with the whole line to Aberdeen, without the loss of a single day during the present favourable season. It will be observed that the traffic return has been issued by the company for the first time. The receipts afford a very favourable view of the business of the line in its present state, it being kept in mind that only the southern section is in operation, including the Arbroath and Forfar, and the new portion to Montrose and Brechin.—*Ibid.*

LEAD REGION AND LEAD TRADE OF THE UPPER MISSISSIPPI.

A very interesting and well written article on this subject appears in the last number of Hunt's *Merchants' Magazine*, from which we glean the following facts:—The existence of lead ore in the country of the Upper Mississippi has long been known: traces of it were pointed out to the early French voyagers and traders by the Indians, who, finding that they could make it an article of traffic, began to dig for it, and convert it into metal.

Their mode of reducing the ore was by throwing it, when a small quantity had been collected, on to large fires, which were then permitted to burn out, when, in the ashes, or in small holes, previously dug for the purpose, the melted lead would be found in shapeless pieces. These were sold to a trader. Some of the old "Indian diggings," that have been found and "proved up," have turned out to be very valuable. The most productive lode (or lead, as it is called by the miners of that region) yet found, was an Indian discovery, and is known as the "buck lead." It is within a mile of the present city of Galena. On the west side of the Mississippi river, in the then Louisiana territory (now Missouri), discoveries of lead ore were made about the same period as those on the east side. Attempts were made by the Governor of the colony, then subject to France, to work the mines, but owing to difficulties with the Indians, and the confusion into which its affairs soon fell, without any considerable success. They were then granted by the French king to Anthony Crozat, who, after five years of toil and expenditure, without any corresponding return, relinquished his patent to the famous Mississippi Company. It is supposed that this company succeeded in finding large quantities of ore; but, in 1720, three years after their relinquishment, the "Mississippi bubble," as it was called, burst; and from that time, for a long period, the mines were pretty much abandoned.

In 1788, J. Dubuque, a mineralogist, who had some years previously settled among the Sac and Fox Indians on the Upper Mississippi, near the site of the present town of Dubuque, received from the latter a grant of a certain mine, and the privilege of searching and working peaceably wherever he might please. Under this, having obtained possession of a tract of land on the western bank of the Mississippi, in 1796, upon his application, a grant of seven leagues on this bank, by a depth of three, was made to him by the Governor-General of Louisiana. He retained possession of this grant up to the time of his death, in 1809, working and proving his mine thereon. When under the treaty of Sept. 21, 1832, the Indians evacuated that part of the country, the heirs of Dubuque resumed his grant, and commenced on it large improvements. The United States, however, claiming this land by virtue of a subsequent purchase from the Indians, and the next year forcibly ejected the settlers by military power. The claimants, however, under the Dubuque grant, still insist upon their title, but at no court exists having jurisdiction to determine the matter, they have been urging their appeal before Congress for redress, thus far without success.

The great portion of the Upper Mississippi lead region, being, in fact, the great lead region of North America, lies chiefly in the present territory of Wisconsin. A small part of it, however, lies in Iowa, along the bank of the Mississippi, and embracing most of the Dubuque claim, and a part also, embracing about 10 townships, in the north-west corner of Illinois. The whole region contains about 80 townships, or 2880 square miles. Its extreme length, from east to west, is 87 miles, and its greatest width, from north to south, 44 miles.

Our Government, after the purchase of Louisiana, and the acquisition, by treaty with the Indians occupying it, of the territory east of the Mississippi, and between the Illinois and Wisconsin rivers, in the expectation of deriving great profit from the mineral lands embraced within this newly-acquired country, passed laws, reserving them for sale. Authority, however, was given to the President to lease any lead mine that had been, or might be hereafter, discovered, for a term not exceeding five years. No leases were granted till the year 1822. In consequence of the defects of the leasing system adopted, and the expenses attendant upon it, the United States derived little, if any, benefit from farming out their mineral lands. In 24 years from the period of granting the first leases, the whole amount of rent received was, in lead, 445,729 pounds, and in money, in lieu of lead, \$5531 18. Estimating the rent lead at \$2 50 per hundred, and we have, as its value, \$139,642 22. Add to this the amount of money received in lieu of lead, and the total receipts for rent is \$145,174 40. The expenses attendant upon this leasing during the same period were \$68,454 50, leaving balance in favour of the United States, \$76,709 90, equivalent to an annual product of \$3196 24, or the interest at 6 per cent. on \$53,284. During the latter part of the period, however, the expenses of this leasing system actually exceeded the receipts by about three-fourths of their amount. The policy adopted in regard to the mineral lands having resulted in no practical benefits to the Government, and many evils and much dissatisfaction having grown out of it, at length, in 1846, after repeated efforts, a law was passed, directing the President to make sale of those that had been reserved in Illinois, Wisconsin, and Iowa. In the spring of 1847, sales were made, and the titles having now become quieted, and the interests made certain and permanent, there would seem no check upon the prosperity of this region of country. From a table exhibiting the amount of lead shipped from the several points on the Upper Mississippi for the last seven years, and the estimated value, we gather the following results:—

Years.	No. pigs, of 70 lbs. each.	Estimated value.
1841	463,414	\$ 981,342 90
1842	474,699	787,892 08
1843	584,131, at \$2 37 1/2	971,117 78
1844	634,601, at \$2 82 1/2	1,254,923 00
1845	788,460, at \$3 00	1,955,766 00
1846	732,493, at \$2 90	1,526,058 08
1847	787,656, at \$3 00	1,654,977 60

Total value produced in seven years ... \$ 8,832,177 91

This is an annual average of \$1,261,739 70.

This is a large product from a region embracing only 2880 square miles, and yet its richness has but begun to be developed.—*Miners' Journal*.

LONDON AND NORTH-WESTERN RAILWAY COMPANY.—We are sorry to observe, that there is at present no apparent prospect of a reconciliation between the directors and the late engine-drivers. A meeting of the latter was again held on Thursday evening, when the most liberal views were expressed by all present. They offer to leave their case to three disinterested parties, but refuse to return, under any circumstances, until their former standard salaries are agreed to. Our opinion is, that all correct-minded men think Mr. McConnel, and his supporters, are decidedly in error, and careless for the safety of the public, and that in this case the men are right. Another accident took place yesterday, by which the life of one of the engine-drivers was placed in imminent peril. T. Sando left Birmingham at a quarter to nine o'clock on Thursday evening, in charge of a luggage train, which he brought in safety as far Tring; and while passing through the cutting, something irregular appeared in the working of the engine, when he became so alarmed, that he threw himself off the plate on to the embankment, and severely fractured his thigh; such are the new engine-drivers. We have, however, reason to believe, that communications have taken place with Mr. Glyn, which are likely to lead to an amicable arrangement with the old engine-drivers. We sincerely trust this will be the case, as the directors must see at least the inutility, from what has already occurred, of listening to the ill-advised suggestions of Mr. McConnel, to reduce the well-earned remuneration of so important a class of men.

Mr. Glyn, at the London and North-Western meeting last week, took the opportunity of congratulating the shareholders upon the connection with the docks in the Thames, which will very shortly be realised. It is curious to observe how every railway is trying to have its water terminus. Mr. Hudson connects his Eastern Counties at Yarmouth; his Hull and Selby at Hull; his northern lines at Hartlepool and Sunderland. The Great Western has Bristol, and is looking to Plymouth and Falmouth. The shrewd men of Sheffield were laughing at for seizing hold of dull Great Grimsby; but every day's experience is proving the wise policy of that step. The Lancashire and Yorkshire have secured Goole; the South-Western, Southampton, &c.; and we have no doubt that, in a few years, docks will be a feature of every important line. The possession of a good water terminus is like extending the line, in one sense, to all the world.

OPENING OF THE EAST LANCASHIRE RAILWAY.—The link between Accrington and Stubbins of this line of railway, completing the chain between Manchester and Preston, was thrown open to the public on Thursday. This link is about eight miles in length, and embraces some of the most formidable works on the entire line, including an incline of 1 in 78 on the Manchester side of the summit, and inclines varying from 1 in 110 to 1 in 40 on the Preston side, descending into the town of Accrington. Of course, some curiosity was experienced to see how the engines would surmount this difficulty. The *Zamia*, a passenger train engine, supplied by Messrs. Wilson and Co., Leeds, took the first train with seven carriages up the heavy incline from Accrington, at an average speed of 25 miles an hour; the second train was the express, and this was taken up the incline by an engine constructed by Messrs. Sharpe and Roberts, at the rate of 30 miles an hour, which is considered a rather surprising fact, when it is borne in mind that it was an uncoupled engine; and the whole

THE MINING JOURNAL,

distance, between Blackburn and Manchester, 26 miles, was accomplished in 50 minutes, exclusive of an unavoidable detention of a few minutes, at Bury, for the junction train over the Rawtenstall branch. The whole distance, between Manchester and Preston, is about 40 miles, exceeding the length of the Lancashire and Yorkshire by about 3 miles, and the London and North-Western route, via Parkside, over the North Union, by about a mile.

COAL MARKET, LONDON.

PRICE OF COALS PER TON AT THE CLOSE OF THE MARKET.

MONDAY.—Davison's West Hartley 14 3—Dean's Primrose 13 3—Adair's Main 12 6—Hastings' Hartley 14 3—Original Tanfield 11 9—Ord's Redheugh 12 6—Ponton Windsor 12 9—Tanfield Moon 14—Tanfield Moor Bites 12 9—Wall's End Acorn Close 16 3—Clarke and Co. 14—Elm Park 16 3—Gasforth 15 6—Hilda 15 6—Walker 15 6—Wharncliffe 15 6—Lambton Primrose 16 3—Belmont 16 6—Bell 16 6—Haswell 17 3—Hutton 17 3—Lambton 17 3—Russell's Hetton 17—Shotton 16 6—Stewart's 17 3—Whitewell 16 6—Caradoc 17 3—Hartlepool 17 3—Hudson's Hartlepool 16 3—Heugh Hall 16 3—South Hartlepool 16 6—Thornley 16 3—Adelaide Tees 16 9—Tees 17 3—West Hetton 16 6—Derwentwater Hartley 14—West Hartley Netherthorpe 14 3—Ships at market, 103; sold, 61.

WEDNESDAY.—Bate's West Hartley 14 3—Adair's Main 12 6—Hastings' Hartley 14 9—Holywell Main 14 6—New Tanfield 13—Original Tanfield 12—Orl's Redheugh 12 6—Ponton Windsor 12 9—South Peartree 12—Tanfield Moor 13 6—Tanfield Moor Bites 12 9—Townley 13 6—Wylam 14 3—Wall's End Brown's 14 6—Clarke and Co. 14—Framwellgate 16—Gibson 15 6—Belmont 15 6—Walker 15 6—Wharncliffe 15 9—Washington 15—Eden Main 16 3—Belmont 16 3—Bradby's Hetton 16 9—Bell 16 3—Haswell 17 6—Hutton 17 3—Lumley 16—Morrison 15 9—Russell's Hetton 17—Stewart's 17 3—Hartlepool 17—Hudson's Tees 15—Seymour Tees 16—Tees 17 3—West Cornforth 15 9—West Hartley 14—Ships at market, 93; sold, 61.

FRIDAY.—Bate's West Hartley 14 3—Buddle's West Hartley 14 9—Hastings' Hartley 14 9—New Tanfield 13—Newcastle Hartley 13 6—Original Tanfield 12—Orl's Redheugh 12 6—South Peartree 12—Tanfield Moor 13 6—Tanfield Moor Bites 12 9—West Hartley 15 6—Wall's End Framwellgate 16—Gasforth 15 9—Hedley 15 9—Ridgell's 15 6—Walker 15 3—Washington 15 3—Eden Main 16 3—Lambton 16 3—Belmont 16 3—Haswell 17 3—Hutton 17 3—Lumley 16—Morrison 15 9—Russell's Hetton 17 3—Hedley 15 9—Shotton 17 3—Lambton 16 9—Morrison 15 9—Russell's Hetton 17 3—Shotton 18 3—Stewart's 17—Hudson's Hartlepool 16—South Hartlepool 16 6—Adelaide Tees 16 6—Richardson's Tees 15—West Cornforth 15 6—Derwentwater Hartley 14 6—Parson's Graigol 22—Ships at market, 92; sold, 72.

NEW PATENTS.

S. G. Hewitt, Buchanan-street, Glasgow, engineer, for improvements in the construction of certain parts of railways.

J. Varley, Bury, Lancashire, engineer, for certain improvements in steam-engines.

J. Henderson, Surrey Canal Dock, millwright, for improvements in machinery for cleansing and polishing rice, pearl barley, and other grain and seed.

J. Simpson, Manchester, C.E., and J. A. Shipton, of the same place, engineer, for certain improvements in steam-engines.

E. T. Truman, Haymarket, London, dentist, for an improved method or methods of constructing and fixing artificial teeth and gums, and of supplying deficiencies in the mouth.

T. Warren, Montague-terrace, Mile-end-road, Middlesex, gent., and W. T. Monzani, James-terrace, Blue Anchor-road, Bermondsey, Surrey, gentleman, for improvements in the construction of bridges, aqueducts, and roofing.

T. De la Rue, Bunhill-row, Middlesex, manufacturer, for improvements in producing ornamental surfaces to paper and other substances.

W. and J. Galloway, Knott Hill Iron-Works, Hulme, Manchester, for certain improvements in steam-engines.

M. H. Picciotto, Finsbury-square, London, for a method or methods of purifying and discoloring certain gums.

DESIGNS FOR ARTICLES OF UTILITY REGISTERED.

T. Dismore, Liverpool, tassel fastener for brooches, clasps, buttons, &c.

C. Smith, Crew, Chester, female elastic supporting band.

J. L. Hancock, Coed-y-Cade, Montgomeryshire, frame for a carpet or other bag.

Welch, Margefon, and Co., Cheshire, back of a pair of braces.

J. Whitehead, Preston, tile machine.

J. Warner and Sons, Cripplegate, beer-engine.

J. West, Lambeth, and J. H. Weston, Southwark, moon, or globe, for gas or other lights.—*Mechanics' Magazine*.

PRICE OF MATERIALS,

As Charged at the Stray Park Mines during the following months of 1848.

DESCRIPTION.	MARCH.	APRIL.	MAY.	JUNE.
Coal, carriage included	15s. 6d.	15s. 6d.	15s. 0d.	14s. 0d. per ton.
Timber, bark	1 0	0 11	0 11	0 11 per foot.
Iron, common	—	8 6	8 0	8 0 per cwt.
" chain	15 0	15 0	15 0	—
" hoop	12 6	12 6	—	12 6
Steel, blistered (best)	—	46 0	—	—
Nails, 4-inch	—	—	17 9	—
" 5 ditz	—	—	16 9	—
" 6 ditz	—	—	16 9	—
" 24 ditz	—	—	2 3	—
Lead, white and red	26 0	—	26 0	—
Tallow	54 0	—	50 0	—
Oil, olive	4 4	—	—	—
Candles, " refined	6 0	6 0	5 10	5 9 per doz.
Powder	38 0	38 0	38 0	38 0 per cwt.
Hilts	1 4	—	1 4	—
Cans	4 3	—	4 3	—
Safety fuse	0 4	0 4	0 4	0 4 per coll.
Leather	1 2	—	1 2	—
Padlocks, two keys	8 6	—	—	—

Mining Correspondence.

ENGLISH MINES.

ANTIMONY AND SILVER-LEAD.—Capt. Charles Williams (August 15) reports—I have this day set a pitch to four men (Goodman and Co.) on the lode discovered on Friday last, at 5s in 17, for the month, and am of opinion the men will get good wages, as the lode seems to be getting larger as they get in; I will, however, write you again in a day or two. The men in the shaft are breaking stones upwards of 1 ton, with fine spots of lead in them.

ASHBURTON UNITED.—Capt. J. Kernick (August 14) reports—The copper branch is cut in Hobson's 25 fm. level cross-cut, and is from 9 in. to 1 ft. in width, composed of black copper, spar, and mundic. I have this day put the men to drive south on it, towards the shoot of ore in Toy's winze, in the 14 fm. level above. The tin lode in Murray's 14 fm. level is 9 in. wide, and good work; this end is being driven west, towards the shoot of tin in Meynard's pitch. There is an improvement in Caunter's pitch, in the end of ground below the high back; this shoot is dipping east, towards the same pitch (Meynard's). The other pitches on copper and tin are the same as when last reported.

BARRISTOWN.—Capt. T. Angove (August 11) reports—The lode in the 16 fm. level end east is very much disordered (the ground about it broken and irregular), producing stones of ore; about 6 ft. under this level the ground is of a much better appearance; in the adit end east the lode is 2 ft. wide, composed of gossan, carbonate of iron and lead, producing about 4 cwt. per fm.; we have a very promising lode. In sinking the winze, behind the adit, the end is about 18 in. wide, 10 in. of which is solid lead; this was discovered a few days since, and, from its present appearance, is likely to continue. The pitches look much the same, except in the back of the adit level, which are beginning to fall off in quantity.

BEDFORD UNITED.—Captain James Phillip (August 16) reports—At Wheal Marquis, the ground in the engine-shaft is much the same as for some time past. There has been no l

SOUTH WHEAL TRELAWSY.—Capt. W. Jenkins (August 14) reports—We are still driving the cross-cut, west of Snell's engine-shaft, with eight men, in the 30 fm. level—ground hard; the elvan has not left us yet, but, I think, there is a shade of improvement on the ground. There is some killas working in one part of the end. I hope, by next week, I shall be able to tell you more.

TAMAR SILVER-LEAD.—Capt. J. Sprague (Aug. 14) reports—The engine-shaft is sunk 3 fms. below the 175 fm. level; the ground continues favourable; no lode has been taken down since last report. In the 175 end, south of the shaft, the lode is 3 ft. wide, producing work of an average quality; in the winze sinking to ventilate this end, the lode is of just the size and appearance which, when holed, will set to advantage. In the 175 end north, the lode is 6 in. wide—rich work. In the 160 end south, the lode is small and poor. In the 145 end, the lode is 2 ft. wide, yielding work of a promising character; in the winze sinking below this level there has been no lode taken down since my last. The 135 end is suspended for the present, on account of so much work coming from the tributaries; the lode in this end, where stopped, was 3 feet wide, and producing work of a promising description. At North Tamar, the engine-shaft is 2 fms. 1 ft. below the 70 fm. level. In the 70 end, the lode is opened to a large size, composed of capel, mundic, and ore—saying work, but not rich. In the tribute department our prospects are improving. We sampled, on Saturday the 5th Aug., 80 tons 19 cwt. 1 lb. of silver-lead ore, which sold for 1416. 0s. 10d.

TINCROFT.—Capt. Peter Floyd (Aug. 14) reports—At North Tincroft, the lode in the 100 fm. level east is worth 5*l.* per fm. for copper. In the 100 fm. level west, the lode is 18 in. wide, with good stones of copper ore. The men from the 90 fm. level east are put to rise against Willoughby's shaft; the lode in this is worth 8*l.* per fm. for copper. As soon as we have holed to the shaft, we shall resume driving the 90 fm. level east. In the 90 west, the lode is 2 ft. wide, with good stones of copper ore. In the 80 fm. level east, the lode is worth 9*l.* per fm. for tin. In the 60 fm. level east, the lode is large, but poor. At Palmer's, on Eastpool lode, the 80 fm. level west is worth 5*l.* per fm. for copper; the 70 fm. level west is worth 6*l.* per fm. for copper. The 142 fm. level, east of engine-shaft, on Highburrow lode, is worth 35*l.* per fm. for tin. The stopes in the back of the 120 are worth 15*l.* per fm. for tin. Martin's lode, in the 120 fm. level, west of engine-shaft, is worth 18*l.* per fm. for tin. The 120 east is worth 10*l.* per fm. for tin. Chappell's lode, in the 100 fm. level west, is 3*l.* ft. wide, producing good stones of copper ore. In the 90 fm. level west, the lode is worth 16*l.* per fm. for copper. The 80 fm. level west is worth 6*l.* per fm. for copper. Dobree's lode, in the 58 fm. level, east of Chappell's shaft, is 10 in. wide, with good stones of copper ore. We have put four men to rise in the back of the 58, where the lode is 15 in. wide, with good stones of copper ore. At Wheal Providence, we have suspended the 33 fm. level west, and put all the men to continue the 33 fm. level east, in order to drain the old mine; the lode is 2*l.* ft. wide, of a promising nature.

TRELEIGH CONSOLS.—Capt. Symons (Aug. 12) reports—Garden's shaft, below the 100, is sinking in the country. In the 90, west of ditto, the lode is about 15 in. wide, but little mineral. In the 90 east, cross-cutting south, to cut a south part of the lode. In the 70, west of ditto, the lode is 1 ft. wide, without ore. In the 60, west of ditto, the lode is 10 in. wide, more promising, with good stones of ore. In the 50, west of ditto, the lode is 4 ft. wide, with a quantity of mundic in the north part of it. Wheal Parent engine-shaft, below the adit, is sinking in the country. In the adit, north of ditto, to cut Wheal Orphan lode; we have constant branches of mundic in this, and have had for several months past—the ore underlying south, but none of them are like a lode; the ground a little more favourable. Wheal Parent engine-house is completed, and the masons are putting on the roof.

WEST WHEAL JEWEL.—Capts. Johns and Bray (August 14) report—In the 70 fm. level, west of Williams's cross-course, on Wheal Jewel lode, the lode is 3*l.* ft. wide, worth 10*l.* per fm. In the 57 fm. level, west of Williams's cross-course, on the same lode, the lode is 3 ft. wide, worth 10*l.* per fm.; in the 57 fm. level, east of Williams's cross-course, on the same lode, the lode is not taken down in the past week; in the rise, in the back of the 57 fm. level, west of Williams's cross-course, on the same lode, the lode is 2 ft. wide, worth 8*l.* per fm. In the 47 fm. level, west of Williams's cross-course, on the same lode, the lode is 9 in. wide, ore throughout, worth 3*l.* per fm.; in the deep adit, west of Hodges's cross-course, on the same lode, the lode is 8 in. wide, producing good stones of ore; in the deep adit, west of Quarry shaft, on Tolcarne tin lode, the lode is 15 in. wide; the ground in this level is looking more promising for tin than it has for some time. In the 30 fm. level, west of Quarry shaft, on the same lode, the lode is 18 in. wide, unproductive. The stopes, working by the tributaries, east of Pryor's winze, in the back of the 12 fm. level, are worth 30*l.* per fm.; the stopes, west of Pryor's winze, in the back of the 12 fm. level, are worth 30*l.* per fm.; the stopes, in the bottom of this level, working on tribute, are worth 25*l.* per fm.

WHEAL COAD.—Capt. Buzzo (August 15) reports—We have, in driving our cross-course, cut several branches leading to the lode; and last week we cut the large champion lode; it is a regular east and west one; we have gone through it for upwards of 10 ft. without reaching the south wall; it carries a beautiful wall on the north side, and is composed of felspar, mundic, can, and large spots of ore; this is the lode we cut 200 fms. west in our sett. In costeening to the hill, we have cut a large champion tin lode, upwards of 18 ft. big; this lode carries on the back a fine blue capel, with a considerable quantity of tin in the lode; this must be the lode of the old miners, or ancients, who obtained their tin from for the supply of the old stamps-house, now in decay, in our sett; and, on clearing the place up, I send you one of the old stamps I found, which you will receive by rail; and I am thinking of erecting the new ones in the same place; we shall take this lode in our adit on driving about 12 fms. further to hill, and at a depth of 20 fms., where I have no question of doubt but that many thousands will be returned. I have been to St. Neot about the wheel, purchased by you, 30 ft. high and 8 ft. breast; and we shall at once take it down and bring it here, so as to forthwith erect our stamps and commence stamping of tin. I am making the necessary preparations to clear the mica, and send it to the orders you have given; the short distance from the railway, will render great facility in the transit. From the numerous pits I have put down, I have calculated the quantity of mica in the sett; and, I am happy to state, it is unlimited. We shall erect our kilns, &c., in the course of next month, so as to be ready for early operations. I have had a party here from Staffordshire; and he has no doubt but that the whole of the mica can be taken by the firms there. We have a fine stream of water in the sett for all purposes.

WHEAL MARY ANN.—Capt. P. Clymo, jun. (August 14), reports—The lode in the 40 fm. level, south of Barratt's shaft, is 2 ft. wide, and worth 9*l.* per fm.; the stopes, in the back of this level, are looking well. The lode in the 30 fm. level, south of the shaft, is still in two parts; the western part, on which we are driving, is about 1*l.* ft. wide, producing gossan, can, and some lead; the stopes, in the back of this level, are producing a fair quantity of lead, but the ground is of late harder for stoping than it has been. Pollard's shaft is sunk to the 40 fm. level; the casing, dividing, and laddering, from the 30 to that level is completed, and we are now cutting the plat. The lode in the 30 fm. level, north of Pollard's shaft, is 2 ft. wide, producing gossan, can, and some good stones of lead. The lode in the winze, sinking under the 15 fm. level, south of Pollard's, is 1*l.* ft. wide, producing gossan, can, and lead. We sold, on Saturday last, to the Tamar Smelting Company, 64 tons of lead ore, at 17*l.* 1*s.* 6*d.* per ton.

WHEAL SARAH.—Capt. J. Spargo (Aug. 16) reports—The shaftmen are getting on satisfactorily with both shafts; we are within a few feet of the western lode. The walls of the smiths' shops, counthouse, &c., are completed, and the timber all ready for the roof, &c. We are preparing floors, so as to dress the lead rising at the 9 fm. level, some of which is excellent work. The lobby is getting up with good speed, according to the hands employed.

WHEAL TRELAWSY.—Capt. John Bryant (Aug. 15) reports—Phillips's shaft is sunk 7*l.* fms. under the 62 fm. level, where the ground is favourable, being clean killas. The lode in the 62 north is 8 ft. wide, and yielding 1*l.* ton of ore per fm.; in this level south we have good stones of lead; there is now more water issuing from the lode than we had for some fathoms, from which, and the lode not underlying so much, we expect an improvement shortly; the stopes in the back of this level are much the same as when last reported. The lode in the 52 north is 2 ft. wide, composed of can and lead, yielding about 8 cwt. of ore per fm. We have resumed driving the 52 south, where the lode is at present unproductive; however, from its appearance, we expect an improvement shortly; the stopes in the back of this level are yielding a fair quantity of ore. The lode in the rise, near the 42 end north, is yielding 1*l.* ton of ore per fm.; the stopes in the back of this level are without any material change. The lode in the winze, sinking under the 32, is yielding about 14 cwt. of ore per fm.; we expect this winze will be holed to the 42 in the course of this week. Trelawny's shaft is in sinking, under the 52 by 9 men, where the ground is favourable. The 52 cross-cut is extended west 1*l.* fms., and we expect to be able to report on the value of the lode here next week, as we are now in the capes, which are rather troublesome to get through. The 22 cross-cut, at Trelawny's shaft, is still driving east, by 4 men, and without any important change. At the north mine, the lode in the 30, north of Smith's shaft, is 1 ft. wide, composed of can and spar, with stones of lead, but indicates an improvement shortly. In the winze, south of the shaft, the lode is worth 7*l.* per fm. We have met with water here, and have not been able to sink for some days; but it is gradually decreasing, and we expect to resume it in a short time. We sampled, on Saturday last, July ores, computed 98 tons, which will be sold on the 21st inst.

WHEAL VINCENT.—Capt. J. Spargo (Aug. 16) reports—We are getting on with our engine-shaft very satisfactorily; the ground, as yet, is of a soft decomposed granite; we have abandoned all shodges, as we have seen sufficient of the different lodes to be correct in sinking our shaft, &c. The deep adit level is still producing strong indications for copper; the lode is 2 ft. wide, taking its regular underlay, impregnated with copper, and large branches of yellow

mundic; the branch, on the foot-wall of the lodes, carries very rich gossan for copper; we are also occasionally breaking some good stones of tin, but it is a regular copper lode. In the south cross-cut, the ground is still favourable for driving; we have set for 17 per fm. less than when we commenced driving. Our storehouse, counthouse, &c., will be completed in a few days.

WHIDDEN.—Capt. J. Kernick (August 14) reports—The cross-cut towards the south lodes is suspended, and the men there are now employed to sink the counter shaft below the deep adit; this shaft is 42 fms. below the surface; and it is presumed, from careful dialling, that in sinking it 30 fathoms the junction of each of the four south tin lodes with the Old Whidden tin lode will be intersected; the shallow adit level, driving east on the Old Whidden lode, contains a great quantity of mundic and blue peach, but is poor for tin; this end should be continued, as it will soon be under a great extent of old workings thrown up at the surface, and the ground is favourable.

FOREIGN MINES.

ALTEN MINES.—The following is the estimated produce for July:—

Mines.	Tons of Ore.	Per Cent.	Fine Copper.
Raipas	50	64	3 <i>l</i> 2 <i>s</i>
United Mines	25	6	1 <i>l</i> 50
Old Mine	30	6	1 <i>l</i> 20
Ryver's	6	6	0 <i>35</i>
Mancour's	5	5	0 <i>35</i>
Michell's	4	6	0 <i>24</i>
New Lodes	10	6	0 <i>60</i>
Quaynig	3	8	0 <i>24</i>
Carl Johan's	5	6	0 <i>30</i>
New lode, near Melsvig	3	5	0 <i>16</i>
Total	131		8 <i>09</i>

Mining Report from the 12th to the 31st July.

Raipas.—The untoward changes noticed in my last report, have occasioned a considerable falling off in the present month's produce; but I have every reason to anticipate an increase from the future operations, a specification of which will be found in the list of settings. The exploratory workings in the 20 fm. level have, as yet, been attended with indifferent success; but, with a little perseverance, we still hope to find the continuation of old No. 11 bed. The lode in the 20, 15, and 10 fm. levels has been more compressed and disordered than for a long time past, and we have, in consequence, found it advisable to make some material alterations in our future proceedings. The bargains now working, which may, with one or two exceptions, be considered entirely exploratory, are productive and profitable, and that the roof of the 15 fm. level is rich and improving, notwithstanding its distance from the present level does not exceed 2 fms. We are still unable to work the stopes in shaft No. 3, on account of the dangerous nature of the ground, and, I fear, we shall be obliged to adopt some other means for reaching this productive and promising part of the mine. In addition to the obstacles we have here enumerated, we have had to encounter one of equal importance; but its continuance will be temporary—viz.: the swollen state of the Alten River, occasioned by heavy rains and floods from the mountains, which, for a time, completely put a stop to the carriage of the ore from the mine. Four cargoes have been delivered to the smelting-house, several others remain at the mine, and a cargo of best dredge, of 16 to 18 per cent., is on the side of the river, waiting for the floods to subside. Such an occurrence we have never before experienced at this season of the year. The general prospects of the mine are less flattering than formerly; but all mining speculations are subject to fluctuations, which cannot be foreseen, and, consequently, a temporary derangement, arising from a series of untoward events, should not give rise to any doubts respecting the future results, which I have every reason to believe, our combined efforts will enable us to render both satisfactory and profitable.

United Mines.—Ward's lode has again improved, and, in the new level, commenced in another branch of the lode, under the old 10 fm. workings, we have been highly successful. This level contains at present a good branch of ore, of a most promising appearance, and penetrating a part of the lode heretofore unexplored. We are led to hope that the present favourable indications will be permanent, and lead to a profitable result. The new slope, in the back of the lode, behind the level, is also very productive, and yields remunerative returns. During the time employed in unloading the coal vessels, most of the tribute pitches on Woodfall's, Ward's, and Hoskins's lodes were suspended, and the men will now be employed to explore the surface of several other lodes, in the hope of making further discoveries before the winter again sets in, when they will return to their several bargains in the mine. Four cargoes have been delivered to the smelting-house, several others remain at the mine, and a cargo of best dredge, of 16 to 18 per cent., is on the side of the river, waiting for the floods to subside. Such an occurrence we have never before experienced at this season of the year. The general prospects of the mine are less flattering than formerly; but all mining speculations are subject to fluctuations, which cannot be foreseen, and, consequently, a temporary derangement, arising from a series of untoward events, should not give rise to any doubts respecting the future results, which I have every reason to believe, our combined efforts will enable us to render both satisfactory and profitable.

Micell's.—The thin and narrow part of the old slopes on Hellen's lode, the produce will not at first be materially increased; but we hope shortly to be able to work several of the old pitches. The heavy rains during the last three weeks have dissolved a great portion of the ice; and in the course of new month, we expect the workings will again be open.

New Lodes.—The exploratory workings, in the Melsvig lode, have been commenced with extremely favourable prospects. Eight men are now employed in uncovering the backs, and we hope shortly to increase the number. All the workings are at present on tribute, and we have not yet been able to increase the number of workmen at this place, and expect a corresponding increase in the returns.

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Cole's.—The lode has been suspended.—All the other mines continue as last reported, and now that our shipping season has closed, we hope to employ our forces at the several mines with greater regularity and advantage than we have been enabled to do during the last two months.

Ore Dressing.—The rains have supplied us with a full stream of water for the stamps and other machinery, and the returns are, consequently, more satisfactory than we had expected.

The tribute ores will not be delivered to the smelting-house before the end of this week; but, as soon as the assays are made, the delivery note shall be forwarded, and, I doubt not, the result will give you satisfaction. The present deliveries amount to about 230 tons, but we hope to add considerably to this quantity by the Raipas returns, before the arrival of the next post.

IMPERIAL BRAZILIAN MINES.—*Gongo Soco, May 23.*—Gongo presents nothing calling for a single remark. At Bananal, the Tamandua cross-cut is still in rubbish; but symptoms of the neighbourhood of the rock have just now appeared. Hollingsworth shaft goes down well, and is about 4 fms. below the shallow adit. The southern end of the new deep adit is still in blasting ground; but it is rather of a better description than that we had previously passed through; a communication has been opened in this level, between Thomas's and Walker's shafts; and we are now levelling the bottom of the opening, to allow a free passage for the water. The men who were employed driving the level, are now cross-cutting the jacutinga westward towards the mountain; and, as soon as the whole of it has been penetrated, we purpose driving northward on the most favourable vein we can find. The unpenetrated position of rock, between Walker's shaft and the lower end (tail) of the new adit, is now only about 8 fms. in width; and, as a favourable change has taken place in the lower part of it, since the captain's report was written, I have not the smallest doubt but that we shall have got through the whole of it before I have again the honour of addressing you. Two or three weeks will, however, still be required for levelling the bottom in a similar manner to that above mentioned as now in progress, between Walker's and Thomas's shafts.

By the time the adit is open for use, the new pumps will have arrived, and been fixed; and the new wheel is now ready for service—so that, before the end of June, every necessary preliminary for a speedy and thorough examination of the property, will be in perfect order. At Walker's shaft, we have commenced driving the 7 fm. level southward, towards the mountain, which we shall reach at about 1 fm. below its present bottom; the water is, however, so far master of our present machinery, that we can only work in this spot occasionally. The new commissioner's house, at Piraeaster, is getting on well; and every other branch of your service is proceeding in a most efficient and satisfactory manner.

June 3.—At Bananal, the Tamandua cross-cut continues to penetrate the jacutinga westward towards the mountain; and, as soon as the whole of it has been penetrated, we purpose driving northward on the most favourable vein we can find. The unpenetrated position of rock, between Walker's shaft and the lower end (tail) of the new adit, is now only about 8 fms. in width; and, as a favourable change has taken place in the lower part of it, since the captain's report was written, I have not the smallest doubt but that we shall have got through the whole of it before I have again the honour of addressing you. Two or three weeks will, however, still be required for levelling the bottom in a similar manner to that above mentioned as now in progress, between Walker's and Thomas's shafts.

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June 13.—I am happy to announce the return of the gold troop from Rio, under the command of J. Walker, and accompanied by the miners, Nicholas Vivias, Hannibal Rough, W. Smithian, and W. Gribble, whose articles of agreement have also reached us.

of advances on bills of exchange, and deposit of other available securities; and that the bank agreed to make these advances under "certain restrictions;" and then calling upon the shareholders to put their affairs in "trust" (the trustees to be approved by the Bank)—the power sought for being "the sale of all, or any part, of the property, from time to time, for liquidation of debts," which was, however, objected to and protested against. The balance-sheets, as long promised, was withheld under frivolous pretences, and has not since been produced; and the shareholders are still in the dark with regard to the company's transactions with the Bank. A suit in Chancery was then had recourse to, in which both the company and the Bank are made defendants—part of the prayer being, that the affairs of the company may not be put in trust; and, likewise, that the mortgage to the Bank may be declared not binding on the company, and that the deed shall be given up to be cancelled. Notwithstanding the official notification of the objects of the Chancery suit, and in defiance of the written protest served upon the court of assistants, in presence of the Bank solicitor, the former, without consulting the shareholders, have executed a deed of trust, appointing the three managers of the company trustees. With the assistance and concurrence of the trustees, so illegally appointed, the Bank have been put in possession of the company's property, which they still retain, but which the present proceedings in Chancery (as far as relates to the Bank) seek to dispossess them of regain possession for the company.

The three trustees are directors of the company as well as managers; and, with their co-directors, are securities to the Bank as "collatorts"—and the Bank, failing to satisfy their claim upon the company's property, will fall back upon them, which circumstance will serve as a key to their proceedings. Unfortunately for the shareholders, the solicitors of the company are acting as solicitors to the directors individually—an anomalous position, as the interests of the parties are in direct opposition.

Let the shareholder of any company make the case his own, and then he will feel that it is no longer a private contest between the parties more immediately interested, but a matter in which the interests of the many are concerned; for it is monstrous to suppose that a person's property can be made away with by trustees without his sanction, or even knowledge, and that he shall be without a remedy against the parties to the transaction; or that the directors of public companies can, upon their own responsibility, convert partners into creditors, under any pretence whatever.

And all persons in the habit of selling goods to corporate bodies, where there is no individual responsibility, will at once perceive their best security is the making it imperative that publicity shall be absolutely essential to give legal validity to the alienating of a company's property to the prejudice of lawful claimants; and where large and extensive powers are given by the Legislature to a corporate body like the Bank, for the public good, the abuse thereof becomes a public question, and a fit subject for Parliamentary inquiry. Shareholders of public companies are earnestly requested to draw the attention of Members of the Legislature to the public principle involved in the present proceedings, with a view of stimulating inquiry, and enacting such remedial measures as may be deemed necessary, particularly with regard to the publication of the accounts duly audited.

W. H. LORDE.

MINING IN WALES.

SIR.—In your Journal of last week, I observe a long epistle from Mr. C. S. Richardson, C.E., respecting the prospects and system of working the different mines in Merioneth. Now, Sir, I will not trouble you, or your readers, by following Mr. Richardson all over the country; but commence at its centre—Dolgelly. Mr. Richardson writes, "Near Dolgelly, on the banks of a fine river, is a lead lode, 6 ft. thick, running up to surface in the eyes of the miner; this is, indeed, a treat; it contains, as near as I should imagine, about 20 ozs. of silver to the ton; it appears, as you look on the lode, from the small excavation made, to be a solid rock of metal, more than an ordinary lode; I do not doubt the least that, with about 10 or 15 good Cornish picks and gadmen, 100 tons per month may easily be raised;" and further on he says, "these mines are stopped for want of public support." Now, Sir, let us see what public support these mines require; we are told that 10 or 15 Cornishmen will rise about 100 tons per month.

Now, 100 tons of this ore will be worth from £150/- to £200/- (say, £150/-), from which deduct all necessary cost (say, 45%), which I think ample to cover every expense; this appears to leave 70/- in favour of the concern—plus profit in these days. But let us follow Mr. Richardson a quarter of a mile further, where he says there is another lead lode that has been worked on to about 20 fms. deep from surface; the lode in the end is now 14 in., perfectly solid lead; 50 tons a month might be easily obtained here also: as Mr. Richardson does not say the number of men required to raise the 50 tons per month, let us value a fathom of the lode described—14 in. solid lead. Now this lode will yield at least 6 tons of ore per fm.; and, if it contains the same quantity of silver as the before-mentioned lode, it will be worth 70/- a fm., from which deduct the necessary cost on the same, including lord's dues, &c., 10/- (say, 25%), this lode also appears to leave a balance of 45/- in favour of the lode.

Now, it appears to me, such mines as these do not want public support, and, even with the worst management, that they might be made to pay. I happen to know a gentleman, who worked a lead mine in that neighbourhood—probably the same that Mr. Richardson speaks so highly of. This gentleman, too, wished to make the public believe that he had a good mine, and once told me that he had 50 tons of ore at surface in the rough. However, he found out his mistake after it was dressed, for it only weighed 1 ton 18 cwt.; but this gentleman was like Mr. Richardson—a youngster to such business—and, of course, an allowance must be made. But let us go back after the "C.E." to the neighbourhood of Dinas-Mowndwy, where such bad system is carried on, and the entire failure of the mines in consequence. Mr. Richardson writes—The Cowarch is the most extensively worked mine on the manor, and here an immense amount of time and capital have been expended in a very inconsistent manner. The mine, which has been working now some three or four years, is only even now down to the 20 fm. level, and which has been done by horse-power; and, although there are no powerful mountain streams close to the shaft, there is not a water-wheel, or set of stamps, on the mine."

Now, Sir, there were parties connected with the Cowarch Mine that knew the geological character of Merioneth from long experience; and, on this account, wheels and stamps was an after-consideration. They wished to see what could be found to supply such machinery, before beginning to make the surface look grand by erecting them. The first lode, and the only one worth notice in the Cowarch Mine, was cut by the adit in the valley, with 18 fms. of back, and explored by a level north and south about 200 fms.; the north end at present has a back of about 35 fms. I need not particularise its character—suffice to say that, for this distance, only one pipe, or bunch, of ore was discovered that would pay for working, and that about 12 fms. long, which produced from 10 to 15 cwt. of potter's ore per fm.

Well knowing the uncertainty of the country, it was thought prudent to sink the shaft (which is in country) some 12 or 15 fms. deeper, and to see what the lode promised at that depth, before erecting the wheels, &c.; accordingly, the necessary pit-work was had to attach to the horse-whim for sinking; but the water was found to be so little as not to require the lift. The shaft was sunk 13½ fms. deeper, and, at the depth of 12 fms., a cross-cut driven (11 fms. in length) to the lode; here, again, the lode made no improvement, but was opened on about 50 fms. south of the cross-cut; in this level; not only was the pipe, or bunch of ore, unbroken, but not a fathom of ground discovered that would even pay for wheeling the above distance; the lode was also wrought on north, about 12 fms., which was found to be blind poor. In extending the adit 9 fms. east, another lode, or branch, was discovered and developed, by level, about 100 fms.; this lode also proved to be small and poor, and no ground was laid open that would pay to work in a high tribute; by its underlie, it was cut in the shaft, and driven on in the 12 fathoms level, for about 35 fms., where it was found to be much poorer, and very much disordered.

In extending the adit level about 30 fms. still further east, here, again, a lode was cut and opened on for 50 fms., without rising 1 cwt. of ore, and, by the advice of such men as Mr. Richardson (and who, too, had the title of "C.E.") describing to the lord of the manor that many parallel lodes were to be cut, by extending the adit, the proprietor was bound by lease to do so, for a considerable distance in hard ground, at a serious expense, without ever cutting a branch—making the whole length of the adit about 200 fms. Sir, I must appeal to you and the mining public, whether it was not better to be cautious in such a district, and see if the lodes would warrant the machinery spoken of; had it been erected, it would be now a monument of disgrace to the memory of those who gave the authority. One word more to Mr. Richardson, and that is—he, and his agent could not get enough to provide them with oatmeal cake and butter-milk, if they had all the mine, without paying the lord his dead rent of 250/- a year. I have seen several such men as Mr. Richardson in this country, who by the time they have seen a mine, and learnt a few of the mining terms, think themselves wonderfully clever; but, from the statements of all such men, I would advise to deduct, at least, 70 per cent. A MINER.

Merioneth, August 17.

ASTURIAN MINING COMPANY.

SIR.—Allow me a brief space to reply to "Detector's" last most important conclusion. The animus of his first letter was evident in every sentence; in his last, it is openly avowed. He says, it was his purpose "to recite faults and failures," and that those "favourable points" adverted to by me were "irrelevant to his case." Undoubtedly they were. His object was to injure either the company or the directors, by harping on "faults and failures" which had been openly acknowledged, and which were committed years since, and concealing the reparation of the most important of them all—the appointment of Mr. Manby—by the engagement of another gentleman, who has proved himself so skilful and so competent. The man of candour would not have thought the present unexampled success of the mining operation, irrelevant to his case, when writing to inform the shareholders that it was probable another call would be made; nor would he have applied such unjust and untrue terms, as that a portion of the funds had been "shamefully misappropriated," and the balance-sheet prepared on a "fallacious principle," to "hoodwink the shareholders."

I never before heard it insinuated, that any portion of the funds had been "shamefully misappropriated." The cost of Manby's expensive road to a mountain of rubbish, and that of his other failures, can never be called a shameful misappropriation of funds. The appointment of the man who thus squandered the property of the company was a lamentable error. "Detector" evidently alludes to the "mare's nest," discovered by Mr. W. at the last meeting, when he says the balance-sheet was prepared on a "fallacious principle." Mr. Colquhoun had received 50/- on account of 200/- due to him. In the balance-sheet he was debited with 50/-, and credited for 200/-—whereas (says Mr. W.) he should have been credited for 150/-, since he had received 50/- in part payment of 200/-! Oh! "Detector," pray take a lesson in bookkeeping by double entry, and advise Mr. W. to do the same. I will subscribe a trifling to the expense, in order that full 20 minutes may not be spent, at the next meeting, in such arrant nonsense. "Detector" seems angry, that the directors did not impale, crucify, or even tar and feather this Mr. W., for calling the debts due to the company "moonshine"; surely the directors did wisely in not descending to notice such blatant absurdity.

I am not a director, nor in the confidence of the directors, although I have always received from several, and from the secretary, the most candid information respecting the progress of our undertaking, whenever I have called at the office, whether the intelligence was favourable, or otherwise; and I believe that not one shilling of the company's funds was ever spent on the North of Spain Railway. The hints and innuendos respecting this scheme would lead any reader of "Detector's" letters to infer that a part of the company's funds had been "shamefully misappropriated" in promoting this abortion. If he knows this, let him openly say it. I will condemn the directors as much as he can; but if such is not the case, let him take shame for insinuations that lead to the inference. "Detector" asks me, with an air of confidence, respecting this railway, if it was concerned in "blowing it in?" If "Detector" means promoting it, answer that I never, directly or indirectly, had any connection with this scheme,

nor ever had a single share in it. "Detector's" answer, if he or Mr. W. ever had? I have answered "Detector's" question without reservation, will he now answer one or two of mine? Was he, or was he not, with Mr. W. and some others, desirous last year of getting rid of the present directors, and installing themselves in their place? Was, or was not, "Detector" one of those who procured a copy of the company's deed from Spain, in order to see how this consummation could be effected; and, when it was found that they had no power to change the direction, sent the deed to the directors with a modest demand of 5/-, the expense of procuring it, which the directors, of course, refused to pay? If "Detector" was one of this party, I can pity his severe disappointment, and can easily account for the tone of his letters.

August 17.

NIL DESPERANDUM.

STRAY PARK AND CAMBORNE VEAN MINES.

At a general meeting of adventurers, held at the mines, on Friday, the 11th inst., the accounts for March, April, May, and June were presented, showing—

Tutwork cost	£1399 0 3
Merchants' bills	771 19 11
Steam whm and engine-house complete	900 0 0
Tribute pay, subsist, and lord's dues	1373 18 2
Balance in hand	328 8 7—£4773 6 11
Balance in hand	£836 18 1
Copper ores (534 tons 19 cwt. 2 qrs.)	2101 8 0
Ditto (454 tons)	1585 0 10
Stray Park old engine	250 0 0—£4773 6 11
Average monthly gettings of miners in the above four months—tutworkmen, 21. 9s.; tributaries, 17. 16s. 6d.	

The accounts, having been examined, were allowed, and the following report, from Capts. R. Eustice and E. Ralph, was read and adopted:—

Aug. 11.—In the 70 end, driving west, the lode is 1 ft. wide, yielding 1½ tons per fm. In the 90 end, driving west, at Wheal Frances, the lode is 1 ft. wide, yielding 1 ton of ore per fm. In the 90 end, driving west, at Wheal Frances, the lode is small and unproductive. In the winze sinking below the 90 fm. level, the lode is 2 ft. wide, yielding 5 tons of ore per fm. In the 100 end, driving west, the lode is 20 in. wide, yielding 4 tons of ore per fm. In the 110 end, driving west, the lode is small and unproductive. In the 120 end, driving west, the lode is 2 ft. wide, yielding 2 tons of ore per fm. In the 130 end, driving west, the lode is 2 ft. wide, yielding 2 tons of ore per fm. In the 140 end, driving west, the lode is 3 ft. wide, ore throughout; these two bottom ends are in an improving state, and it is most probable that this important part of the mine will soon become very productive. The tributary ground is looking very well, and, even with the present low standard, the mine will pay the current cost, without our being compelled to take away the ore at a disadvantage. At Wheal Frances, besides driving the 80 and 90 ends west, we are clearing up the old workings above the 50 fm. level, and driving a cross-cut in the deep adit level, to facilitate the discharge of the water, which preliminary operations we hope to complete within the present month.

TAVY CONSOLS MINING COMPANY.

A general and special meeting of adventurers was held, at the Central Hall, Plymouth, on Tuesday, the 8th inst.—W. RENDLE, Esq., in the chair,—when the accounts were presented, showing—

August 8, balance from June 13	£ 20 8 1
May cost, as per voucher	186 9 8
June ditto	198 5 5
Merchants' bills	65 19 6—£471 2 8
June 20, sale of lead ore	£ 11 3 3
23, ditto copper ore	198 10 8
July 21, ditto, ditto	131 11 7
Balance down	129 17 2—£471 2 8
Balance brought down, 129. 17s. 2d.; liabilities estimated, 361. 18s. 4d.—£491. 18s. 6d.	

The accounts were allowed and passed, and the thanks of the shareholders given to G. Strode, Esq., for his liberal conduct in giving up the dues for four months, should the mine not pay her cost during that period. It was resolved, that no agent of the mine shall order any goods above the value of 5/-, except by the written authority of the committee. The thanks of the meeting were given to the committee of the past two months, and the following gentlemen appointed for the next two months—Admiral Tremlett, Mr. Rendle, Captain Ormond, Mr. Slocombe, Mr. Arscott, and Mr. Carter. A call of 5s. per share was made, and the following report, from Capt. Goss, read and adopted:—

Since the last general meeting, we have completed sinking the engine-shaft to the 46 fm. level, where we have commenced driving a cross-cut south, to cut the lode. We have driven about two fathoms, and in driving the last two or three feet, the end has become very wet, and producing good stones, or veins of yellow ore, which strongly indicates that we are getting near the lode—driving at 77. fm. In the 24 fm. level, west of the cross-course, the lode is about 4 ft. wide, composed of spar, pebble, muriac, and good spots of yellow ore—driving at 51. 10s. per fm. The 20 fm. level has been driven east of the engine-shaft about 8 fms., in a lode 4 ft. wide, leaving tributary ground; and the end at present is poor, but at times producing good stones of ore. The pitch in the bottom of the shallow adit is being worked by four men, and producing a fair quantity of ore. The engine and pit work are all in good repair.

WHEAL ANDERTON MINING COMPANY.

A meeting of adventurers was held at Chubb's Commercial Hotel, Plymouth, on Tuesday, the 8th inst.—HENRY SEAMAN, Esq., in the chair,—when the accounts were presented, showing—

By balance on 1st	£ 1 8 4
Sale of tin, June and August	663 15 11
Arrears of calls	59 0 0
Call made, at 2/- per share	393 0 0—£1117 4 3
Balance due to James Carpenter	£200 0 0
Ditto, Mr. Elliott	56 9 8
Labour cost for April, May, and June	483 16 0
Merchants' accounts, lord's dues, &c.	344 5 6
Balance in favour of adventurers	32 13 1—£1117 4 3
Balance brought down, 32. 13s. 1d.; ores to receive, not credited for, 35L; calls due, 107L—174L 13s. 1d.	

The accounts having been passed, Captain Carpenter, was appointed purser. A proposition was entertained by the meeting for increasing the number of shares to 300, by disposing of 60 of the old relinquished shares, at 15/- per share, *pro rata*, amongst the adventurers, it was resolved, that they be so offered to the shareholders, and that the purser be instructed to call a meeting on the 18th September, for the purpose of making a call of 50/- per share, unless the shareholders, on or before such meeting, shall have taken up the shares; and that their disposal shall be then confirmed and carried into effect. A lengthy report, from Capt. Carpenter, was read and adopted, as also the following, from John Paul, mining engineer and surveyor, of Tavistock:

Aug. 5.—I have, in company with Captain Carpenter, carefully examined the mine this day, and may say the whole question of the past proceedings, and the future working, had our best consideration. In regard to the past, I find, since I last had this pleasure (15 months ago), that the engine-shaft has been sunk 20 fms., and the different levels extended east and west, and a great deal of good tin ground laid open. The lode is very nearly perpendicular, and, consequently, continues very close to the engine-shaft, which is of great advantage. The shaft-work, pumps, &c., are in excellent order, and the mine well ventilated by the outlay in sinking winzes, &c., and hoisting to the old shaft from the surface; besides this, the sundry work for the new drawing engine, making large and capacious dressing floors, sheds, hatches, &c., as well as roads, both tram and others, have all required considerable outlay, and may serve to account for the sums expended. And here I may say, the plant is grown to a considerable state of maturity—or, in other words, the mine is in good working order. In regard to the state of the mine underground, in reference to the future returns and prospects, I will now enter more into detail. The lode in the 80 fm. level is large, about 8 ft. wide, and, east of the plat, getting into distorted ground near the slide: this

Current Prices of Stocks, Shares, & Metals.

STOCK EXCHANGE, Saturday morning Eleven o'clock.

Bank Stock, 5 per Cent., 195	8
3 per Cent. Reduced Ann., 86	4
3 per Cent. Consols Ann., 86	5
4 per Cent. Ann., 87	7
Long Annuities, 85	
India Stock, 10 per Cent., 240	42
3 per Cent. Consols for Acc't, 86	6
Exchequer Bills, 10000. 2d. 24 6 p.m.	

Belgian, 4½ per Cent., 67	
Dutch, 2½ per Cent., 44	
Brazilian, 5 per Cent., 70	14
Chilian, 6 per Cent., 84	
Mexican 5 per Cent., 17	16
Russian, 5 per Cent., 100	
Spanish, 5 per Cent., 12	
Ditto 3 per Cent., 23	

MINES.—The business transacted in the mining share market, during the week, is of an improved character—a decidedly better tone prevailing, notwithstanding the depression of the standard and the metal market. Our letters from the mining districts are also of a very gratifying nature—inasmuch as they represent the mines generally looking remarkably well. The several improvements to which we have before adverted, are stated to be progressing satisfactorily; and, should the change take place shortly by a rise in the standard, which we have anticipated for some time, the mining interest may then be considered as one of the most flourishing.

There have been several transactions in Devon Great Consols during the week, and negotiations are pending for more shares.

South Wheal Frances, Ashburton United, Carn Brea, and Levant, have been inquired for; but we are not advised of any sales having been effected.

Trevikey is reported to have improved, and business has been done in consequence; but we have no official confirmation.

Levant has considerably improved in the 130 and 150 fm. levels, and stated to be looking better at present than at any previous period.

West Wheal Treasury has also improved in the bottom, or 60 fm. level.

East Crowndale, we learn, have been done at an advance.

Shares in the following mines have changed hands during the week:—Devon Great Consols, East Wheal Rose, Bedford United, Herodsfoot, Penman, Condor, East Tamar, Trebene, Treleath, Tamar Consols, Lewis, South Dolcoath, Holm bush, Trevikey and Barrie, Wheal Mary (Redruth), Antimony and Silver-Led Mine, South Wheal Bassett, East Crowndale, Carwinning Hill, Gwinne Consols, &c.

Wheal Seton adventurers, at their bi-monthly account meeting, held on the 8th inst., declared a dividend of 10½ per 99th share, reserving a balance of 555.12s. 10d. in hand. The report is gratifying in the extreme.

A meeting of the shareholders in Tavy Consols was held on the 8th inst., when the accounts for May and June were audited, which shows a loss, with the estimated liabilities of 361. 18s. 4d., of 491. 15s. 6d. The agent's report holds out some encouragement of an early improvement.

Wheal Anderton adventurers met, also, on the 8th inst., to audit the accounts for April, May, and June. The statement presents a balance in favour of the adventurers, with one bill coming due, and calls in arrear, amounting to the sum of 174. 18s. 1d. A proposal for re-allotting 60 forfeited shares, at 15s. per share, was left for the consideration of the shareholders. The report of Capt. J. Paul represents the undertaking in a satisfactory position.

Stray Park and Camborne Vean adventurers held their account meeting on the 11th for the months of March, April, May, and June. The statement presented shows a balance of 328. in hand. The agent's report is favourable; and no doubt, with a fair standard, the mine would be in a proper position to continue dividends.

A meeting of shareholders in St. Austell Consols was held on the 10th inst., when the accounts were audited, and a balance of 311. 9s. 3d. carried to the credit of the adventurers. We are pleased to find the enterprising spirit of the committee of management has met the co-operation of the body of shareholders, in taking up the relinquished shares, with a view of vigorously prosecuting the present prospects of the mine, and which we hope and believe will lead to a profitable result.

The British Smelting Association, to which we briefly adverted last week, we are happy to learn, is progressing in a manner so satisfactory, that we may consider the company nearly completed; and we have no doubt the increase of capital contemplated being brought into the smelting trade by the association, will be considered by the smelters themselves as one of the greatest boons, as well as all associated with the mining interests generally.

In foreign mines there has been a demand for Australians, and business has been done at an advance upon last week's quotations. United Mexicans have been in request, and several transactions effected—Bolanos, St. John del Rey, Alten, Copiapo, and Imperial Brazilian.

Dispatches have been received, per her Majesty's packet *Racehorse*, by the Imperial Brazilian, St. John del Rey, and National Brazilian Companies; but in consequence of the lateness of their arrival, we are unable to furnish more than the Imperial Brazilian in detail. The returns advised are 8 lbs. 4 ozs. 7 dwt. of gold, from the 22d of May to the 12th of June.

The St. John del Rey letters state the profits for the month of May to be 2175.—the produce amounting to 16,899 oits. The National Brazilian we cannot furnish till next week. The Alten reports have also been received, which are very satisfactory, and will be seen in detail in another column.

The following arrivals of specie have taken place since our last:—The Peninsular and Oriental Steam Navigation Company's ship, *Jupiter*, arrived at Southampton, on Monday, the 14th, having on freight 77 packages of specie—value, 58,500L. sterling. The Royal Mail steam-ship, *Hibernia*, arrived at Liverpool, on Tuesday, having on freight specie, to the value of 5000L.

RAILWAYS.—On Monday the market commenced under more favourable auspices than in the previous week, and, altogether, more favourable than what could have been expected, from the state of the weather, and the consequent fears entertained for the crops. On the close of the market, on Tuesday, there was some depression, which, on the following day, merged into extreme heaviness. During the remainder of the week an improvement in the business transacted took place, but prices were still more depressed. During the past week, half-yearly meetings have been held of the following companies:—Birmingham, Wolverhampton, and Stour Valley; Bristol and South Wales Junction; Newry, Warrenpoint, and Rosstrevor; Great Western; South-Eastern; Eastern Counties; West Cornwall; London, Brighton, and South Coast.

HULL, THURSDAY.—Although the business in shares is small, prices remain tolerably firm, notwithstanding the unfavourable weather, and the continued reports of the potato disease, both here and on the continent. The reduction of dividend by the London and North-Western has, on the whole, not had a very serious effect—showing that plain dealing and fair statements are less prejudicial than promises and mysterious allusions on the part of directors. North British thirds, subjected to a heavy call, have drooped in consequence, but are now looking better.

RAILWAY TRAFFIC RETURNS.

Name of Railway.	Lgth. Rwy.	Present ac-tual cost.	Price per share.	Last Div.	Traffic Returns.	1848	1847
Birkenhead, Lancashire, & Chesh.	15	997,284	37	5 p.c.*	£ 920	808	
Caledonian.	141	3,594,470	23½		5561	—	
Chester and Holyhead.	59	2,881,470	26	4	2235	—	
Dublin and Drogheda.	35	754,529	23½		791	1024	
Dublin and Kingstown.	7½	393,915	—	6	1102	1235	
Dundee, Perth, & Aberdeen June.	47	415,073	26	8	1255	1180	
East Anglian (Lynn to Ely).	55	1,062,742	6½	—	548	—	
East Lancashire.	31	7,733,915	17	5	1297	1258	
Eastern Counties and Norfolk.	295	9,833,859	14½	4	16179	15411	
Eastern Union.	51½	979,926	20	7½	1177	—	
Edinburgh and Glasgow.	57	2,881,767	39½	—	4047	4258	
Edinburgh and Northern.	48	1,392,692	17½	4*	2239	—	
Glasgow, Paisley, and Ayr.	70	1,097,321	67	6	2606	3090	
Glasgow, Paisley, & Greenock.	22½	845,545	15	4	1304	1424	
Gt. Southern & Western, Ireland.	131	1,889,787	25	4*	3090	1696	
Great Western.	286	10,570,635	81	7	23539	24043	
Kendal and Windermere.	104	169,588	23	—	311	229	
Lancaster and Carlisle.	70	1,395,193	50½	4	3003	1600	
Lancashire and Yorkshire.	154	7,597,618	66	7	12551	10938	
London and North-Western.	435	21,513,354	115	8	4939	49115	
London and Blackwall.	4	2,411,061	4½	12	1502	—	
London, Brighton, & South Coast.	162	6,067,822	28½	4	11584	13501	
London and South-Western.	196	6,264,164	39½	8	11821	11892	
Londonderry and Enniskillen.	14½	145,135	16	5	152	160	
Manchester, Sheffield, & Lincolnsh.	624	2,336,624	57	5	3392	2255	
Maryport and Carlisle.	28	440,851	49	—	703	686	
Midland Company.	423	9,853,122	94	7	24401	22603	
Midland Great Western (Irish).	36½	725,332	10½	4*	813	900	
Newcastle and Carlisle.	66½	1,407,375	109	6	2538	—	
North British.	82	2,800,748	20½	5	3073	2806	
Scottish Central.	45	1,144,810	24	—	1222	—	
Shrewsbury and Chester.	23	780,272	14	—	903	569	
South Devon.	50½	1,609,071	16	5	1172	—	
South-Eastern.	165	6,932,181	24½	6½	10637	11633	
Taff Vale.	38	82,056	125	5½	1639	1560	
Ulster.	36	684,684	45½	4½	808	755	
Whitehaven Junction.	12	147,095	7	4½	205	272	
York, Newcastle, & Berwick.	269	4,466,526	20½	9	14407	11866	
York and North Midland.	234	3,799,297	61½	10	10226	8731	

FRENCH RAILWAYS.—The Minister of Public Works, accompanied by two engineers and the Prefect of the Cher, went on Sunday last to Vierzon, and there took off the sequestration upon the railroad "Du Centre." The directors of the Paris and Strasbourg Railway Company have issued notice to their shareholders that, in consequence of a large amount of their funds being locked up in Bons de Trésor, and being unwilling to make a sacrifice by realising them at the present low price, a call will be made of 25 fr., payable from the 1st to the 20th Oct.; and another for a like sum, payable from the 1st to the 20th Feb. next. The Northern Railway Company, notwithstanding the recent assurance given, that no call would be made for one year, have also issued a notice for a call of 50 fr. per share, to be paid before the end of the present month, but from which the July dividend of 5 fr. and a bonus of 9 fr. 95 c. per share will be deducted.

PRICES OF MINING SHARES.

BRITISH MINES.

shares.	Company.	Paid.	Price.	shares.	Company.	Paid.	Price.
1000	Abergwesyn	7	—	1000	South Dolcoath	4	4
512	Albert Consols	1	24	256	St. Ives Friends Wh.	20	4
1024	Alfred Consols	4½	5	900	South Harvaunah	10	25
230	Andrew and Nanglois	28½	5	256	South Molton	5	8
1000	Antimony and Silver	5	6½	256	South Tolgus	10	30
Lead Mining & Smelting	5	6½	—	256	South Tresaway	20	12
1024	Ashburton United Mines	8½	10	128	South Wheal Bassett	110	110
1624	Balloweckland	9	18	256	South Wh. Botsey	2½	12½
128	Balnewton Consols	25	26	124	South Wh. Frances	160	200
1000	Baunton Iron Co.	6	64	1000	South Wh. Maria	25	12
1000	Barrington	4½	1	1000	Southern & Western, Irish	2	4
400	Bedford	24	2	289	Spean Moor	30	40
1244	Birch Tor Tin Mine	9½	14	94	St. Austell Consols	9	—
800	Blasenavon	80	17½	94	St. Ives Consols	—	320
120	Blackwall	175	60	128	St. Michael Penkivel	5	10½
120	Brewer	5	7	999	St. Minver Consols	1	6
1000	British Iron, New, regla.	10	13	1000	Stray Park	43	15
Ditto ditto, scrip.	10	10	9600	Tamar Consols	3	5½	
128	Calstock Consols	52½					

NOTICES TO CORRESPONDENTS.

We should feel obliged to all persons, captains, or adventurers, to forward particulars of meetings, &c., of the mines with which they may be connected, on the earliest opportunity, that they may be published in the Journal with as little delay as possible.

The MINING JOURNAL is published at about Eleven o'clock on Saturday morning, at the office, 26, Fleet-street, and can be obtained, before Twelve, of all news agents, at the Royal Exchange, and other parts of London.

THE MINING JOURNAL
Railway and Commercial Gazette.

LONDON, AUGUST 19, 1848.

In another part of this day's impression, we have given a lengthened summary of the proceedings of the BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE up to Tuesday evening; and it is highly gratifying to observe, that they are more than usually important—that they more than ever confirm the preconceived conviction of the vast influence such a body has on the progress of civilised life; the development of mineral riches; improvements in our manufacturing arts; and the vast illumination which it diffuses over the higher and more abstruse walks of science. On the formation of this institution for visiting a single district once in every year for the purpose of eliciting facts and promoting scientific research, it was assailed with almost ridicule by many, and declared totally useless by more; yet it has progressed year by year, increasing every 12 months in numbers and in knowledge, until we now find it located on a spot which, comparatively but a few years since, was but a fishing town, and its neighbouring mountains and valleys a barren waste. Here, aided by the light of that science which the British Association has been formed for advancing, the earth has been made to yield her carbonaceous and ferruginous treasures; blast-furnaces have been raised as if by magic; and the whole district, extending over hundreds of square miles, is now daily pouring forth its iron streams, to irrigate and fertilise the earth. It was this interesting spot that the association chose for their visit of 1848; and we verily believe it will, in its results, prove of equal, if not greater, practical benefit to society at large, than in those of any of its annual visits since its formation.

In the inaugural address, delivered by the president elect, the Marquis of NORTHAMPTON, after comparing their visit last year to that seat of learning—Oxford—and that to Swansea, on this occasion, he said—"To the mineralogist and geologist, the mineral riches of Wales, to which England is so much indebted for its manufacturing prosperity and political importance, will be no small attraction. Moreover, the chemist and mechanician will be anxious to witness the ingenious processes by which iron and copper are here, on a gigantic scale, separated from their ores. These reasons are amply sufficient to account for, and, indeed, to demand a visit from the association, without mentioning the warm invitation that we have received—the kind hospitality that we have been promised. To those members of the association, who were at Southampton and Oxford, it would be quite superfluous to allude to the eloquent terms in which the advocate of Swansea, Mr. GROVE, like a potent magician, or like a representative of the bard and Druid of ancient Britons, summoned us to the shores of the Bristol Channel." And again—"Europe, gentlemen, has now seen a general peace established, with only partial interruption, for the long and unaccustomed period of 33 years. Happily, science has made its hay while the sun of prosperity shone, for the prosperity of science depends much more on peace and order than on favour and patronage. Favour and patronage have, however, not been wanting. It is fortunate that the followers of science have so done, for times have arrived when it would be idle to expect similar progress. It may be flattering and honourable to literature and science, to see a great nation choose her rulers among her poets and her astronomers, but to poetry and astronomy it is, undoubtedly, an evil. Who can regret the compelled retirement from public life, that enabled MILTON to write his great, his divine poems? Who can desire that a very different ambition should have taken NEWTON from the early leisure that gave the world his 'Principia'? Who can tell how much his mastership of the Mint may have retarded the advancement of science? There cannot be a doubt, that many a master mind will now be led away from pursuits the most congenial to it, by the absorbing and prompting demands of political necessity. Still less can it be doubted, that the industrious arts of science, which laboriously bring to her granaries their numerous though small additions—who, in fact, accumulate facts, destined for materials for the greater minds that reason and systematise—these industrious labourers, I say, will be employed in very different ways." We must not omit to state, that Mr. DULWYNS, one of the vice-presidents, presented the president, on his arrival, with 250 copies of a splendid work on the Fauna and Flora of South Wales, for distribution among the members.

It is no function of ours to be occupied with the discussion of political questions—except, indeed, when, as they sometimes do, they largely and immediately affect the material interests of those to whom we habitually address ourselves. It is so, in a sad degree, with the present political distractions of the Sister Island. Politics and abstract questions of imperial or of domestic Government, have well nigh swallowed up all care for the practical realities of life, instead of toiling in the fields where the treasure of Ireland is hidden—in her ports, where it is concentrated—or in her mines, where it waits to fill the shovel, and load the bucket of those who will delve, for it in her deep caverns—instead of this, the mind of Ireland is flashing from city to city, and flitting from shore to shore, in search of the most impalpable phantom that ever yet cheated a race of full-grown men into the notion, that, in any case, or under any circumstances, it would turn out to be a tangible reality. The metamorphosis of the Roman poet were not more absolutely the efflux of his imagination than are the benefits procurable by this suicidal agitation—the fume and the phantasmagoria of theirs. Surely, it must be classed with the most singular of all moral phenomena, that a nation should have lapsed into this preposterous credulity; they tear society to pieces, and then marvel that they have so few of its pleasures. Alas! that bleeding land; and, alas! that infatuated people, whose history is illuminated in every page, that they should be willing to cast the memory of their former renown, and the earnest of their future hopes, into the furnace of a servile rebellion. In either alternative—in the success or failure of their devices—it is difficult to say on which issue they are likely to reap the most fatal fruits. We see an Iliad of suffering and of sorrow as the necessary result of either. Our only hope is that, before they actually plunge into the gulf, a better mind, and a more rational spirit, will animate them; and that they will start back from the precipice on which they stand, shuddering at the weight of those miseries which in its depths would overwhelm them. We have grievances in England, they may believe us. The insufficiency, and the uncertainty of labour, is extensively felt; its inadequate remuneration, when obtained, is matter of bitter experience; but we do not resort to a rebellion as a remedy, knowing, most certainly, that such a course would, above all other things, increase the number and the intensity of the evils we suffer. With us the true remedy is to redouble our efforts to earn and to economise more; we turn to our quays, our looms, our mines, and our fields; and we expect to win more certain and more permanent rewards, a thousand times told in these

spheres of exertion, than could, by any possibility, arise to us by seeking for them on the poisoned whirlpool of a revolution.

But to regard these splendid heir-looms—as it is said we should regard them—just as a provision merchant would regard his last consignment of tubs of butter, or tierces of pork, with a view solely to the profit or loss arising from the transaction, would argue such a prevalent sentiment of meanness, unrelieved by any merit, as would disqualify us for the ennobling toils of empire, and disentitle us to have our name written—where we hope, for a series of centuries, it will remain unerased by the rolling seasons—among the foremost and the most famous nations of the earth.

CONTRACT FOR COAL TO INDIA.—The Court of Directors of the East India Company have given notice, that the Finance and Home Committee will be ready, on or before the 30th inst., to receive sealed tenders, for supplying the company with 1000 tons of coal, to be delivered at Madras, of the under-mentioned sorts—West Hartley, Carr's Hartley, Buddle's, Davison's West Hartley, Stewart's Wall's End (steam), Glasgow Hard Split (screened), and Risca Black Vein (hand picked). There was a warm competition, on Wednesday last, for the contract of 3000 tons of coal, to be delivered at Aden, on the southern coast of Arabia. As we have stated before, too much partiality exists—not only in the contracts for the East India Company, but also those of the Government—as those who are in favour at head quarters are sure to have the preference, although, as we are informed, their tenders are neither so low, or the quality of the coal so good, as those of many of the others. This system has long been deprecated, and many petitions have been presented to the Lords of the Admiralty, and the Court of Directors of the Hon. East India Company, on the subject, by our extensive contractors; and we are glad to find, that although influence will always have some sway with the *employés*, there is more fairness shown towards the competitors generally than hitherto. The system is not confined to coals only, but iron, lead, copper, and other materials required by the naval board. The contracts for coals to India, for the use of their steam-packets and navy, are annually greatly on the increase; for, until coal can be obtained, to any extent, from the Island of Borneo, Australia, and New Zealand, the company must import it from England; therefore, no monopoly should be allowed to exist in the hands of a few. The coal and iron trade with India will shortly be an important branch to our mining, as well as commercial shipping, interest.

PENBROKESHIRE IRON AND COAL COMPANY.—The first stone of the intended works of this company was laid on Saturday last, attended by the usual rejoicings, and congratulatory speeches from the chairman, John Langbourne, Esq.; the manager of the works, T. H. Hosgood, Esq.; and the engineer, T. Hay, Esq.—This company was formed in July, 1847, for the purpose of working iron and coal mines at Kilgetty, near Saundersfoot, the property of the Right Hon. Lord Milford. Till now the works have been delayed in consequence of the Company seeking a modification of the original lease; and thus, we are happy to state, has now been settled to the satisfaction of all parties, his lordship having met the wishes of the company in the most liberal manner. This undertaking (says the *Pembroke Herald*) promises to be of the greatest benefit to the county, from the immense sums of money which will be expended in labour. The commencement of the works may almost be said to form an important era in the county's history. When we cast a glance at the mining districts of Glamorganshire, &c., and compare their present condition with that of a few years back, their rapid progress in wealth and importance is sufficiently obvious, and we turn with more than ordinary pleasure to our own prospects, which promise to raise this country to an importance beyond that which the most sanguine of its well-wishers has dared to hope for. The expending of such large sums of money, and the providing with labour so many hundreds of the industrious inhabitants of this county—a class of men with whom we deem it a privilege to reside, as a most loyal and contented body—will prove one of the greatest blessings to all classes, for all classes must be benefited by it.

MINING IN FRANCE.—We are glad to find that affairs generally are assuming a more cheering aspect than for the last few months; and, although great scarcity of money still exists, which prevents large speculations, confidence is gradually being restored. At St. Quentin, Valenciennes, Rouen, Lyons, and other large manufacturing towns, business is reviving, which, consequently, will have a due effect on mining industry. Although the whole of the furnaces at St. Dizier, St. Etienne, Alais, the Chatillonais, &c., are not in full blast, several are, however, preparing to re-commence operations on a larger scale, as there is every prospect that, before long, there will be a demand not only for wrought-iron, but cast metal; and the supplies at present are very limited, and too high for the markets. The reports from the coal basins of the Loire, Rive-de-Gier, Grand Combe, St. Etienne, Danzin, &c., are more favourable; but the want of money is severely felt throughout all the mining districts. The Government plan for the working of the mines of Algeria, and the encouraging of emigration to that colony by a grant, will be presented at an early day to the National Assembly. The *projet de loi*, on the revision of the tariff duties on foreign iron and other metals, coals, machinery, &c., although not yet presented to the Chamber, is under the serious consideration of the Government, and would have been laid before the Assembly, but for other causes—the unsettled state of Italy, &c.

MINING IN BELGIUM.—There is very little to notice with respect to operations in mining industry, the affairs of Prussia, Denmark, and the whole of Germany, being so unsettled that very few orders are received from those countries, which were so important to Belgian enterprise. Several large orders have, however, been received at the extensive works at Seraing, and a few others in the province of Liege; but, generally speaking, both the iron and coal trade are extremely dull, and a great scarcity of money prevails everywhere.

MINING IN MEXICO.—By the last arrivals, by the *Hibernia* steamer, the news from Mexico is more cheering; the whole of the troops of the United States had evacuated the Mexican territory, and the Government had taken possession of the different ports which had been occupied by the enemy during the late contest. The President was preparing measures, so as to give the greatest encouragement to mining operations, and to liquidate a portion of the losses sustained by the mining interest, during the invasion by the United States' troops. A large part of the \$15,000,000 indemnity to Mexico, by the latter reбурble, had been received.

CALAIS RAILWAY.—This branch of the North of France Railway was opened for public traffic on Tuesday last. The short sea passage, *via* Dover, brings Paris, by this route, within 10 hours of the metropolis, and Brussels within eight.

MALDON, WITHAM, AND BRAINTREE RAILWAY.—This line of railway, the property of the Eastern Counties Company, was opened on Tuesday last for public use. It crosses the main line, or rather branches from it on each side at Witham, the portion to Maldon being about six miles in length, and the branch to Braintree eight miles. The works are now very heavy. At present it will be only worked for goods traffic, in order that the road might be properly consolidated for passenger trains.

INCREASE OF TRAFFIC ON SCOTTISH LINES.—We need scarcely refer to the large augmentation in the receipts of our leading railways during the last week. On the Caledonian, the increase amounts to more than 1500^t, on the Edinburgh and Glasgow, to about 800^t, on the Edinburgh and Northern, to upwards of 800^t, on the North British to about 200^t, and on the other lines we are happy to observe a similar improvement. It is perhaps necessary to explain to parties at a distance, that this increase has been to some extent occasioned by the agricultural show which was held in Edinburgh during last week; but we believe that on some lines the improvement arose from the operation of ordinary causes—on the Caledonian, for example, as well probably as other railways. Our opinion is that the traffic on the Scottish lines should continue to exhibit a decided and rapid improvement for some time to come.—*Scottish Railway Gazette*.

RAILWAY BRIDGES.—We have, during the week, inspected, at Mr. Sadler's, 7, Duke-street, Adelphi, a model of an iron girder bridge, on a novel plan, and which certainly appears to possess much greater bearing powers than any on the old system. The arches, instead of being cast in their usual shape—each end resting on its corresponding pier—are cast in two half-arches, in one length, the solid centre resting on the pier, and thus causing a perfect balance; on the ends of these half-arches are cast a series of teeth, similar to those of pinion-wheels; and the two ends being locked together, tooth in tooth, are then covered by an iron plate on each side, and bolted and screwed up tight, forming a very powerful joint in the centre of the arch, while due allowance is made for expansion and contraction. By this arrangement, the patentee states, there can be no deflection over the centre of any one arch without its being met and counteracted by the whole, forming a series of levers; and the greatest possible strength is obtained with the employment of a minimum weight of iron. The models, we understand, are about to be removed to the Polytechnic Institution, Regent-street, for more general inspection.

TRUST AND LOAN COMPANY OF UPPER CANADA.—A company has just been formed under the above title, of which the trustees are Thomas Barrington, Esq., and G. Carr Glyn, Esq., for the purpose of enabling a numerous class of persons, who experience difficulty in finding safe and remunerative investments for sums exceeding the amount permitted by the regulations of the savings' banks, to secure a good return for investments of small capital. We have before us the prospectus, which does not state the nature of the company's intended operations; but, from the high character of the promoters, and their experience in commercial affairs, there is every security for a most legitimate and remunerative concern.

Death of George Stephenson, the eminent Engineer.

It is with much concern we have to announce the decease of Mr. Geo. Stephenson, C.E. He died at his establishment in Derbyshire, on Saturday last, aged 67. Few men have obtained, or deserved, a higher reputation. He rose from the humblest life, from the elasticity of his native talent overcoming the obstacles of narrow circumstances, and even confined education. In his profession he was as happy and ingenious in his discoveries, as generous in imparting the benefit of them to the world. In the history of railway enterprise and progress, the name of George Stephenson will ever exist.

The *Derbyshire and Chesterfield Reporter*, of Thursday, in concluding an excellent memoir of Mr. Stephenson, says—"Never was a proposition made to him for the mental and temporal improvement of his workmen in his collieries—which he had upwards of 1000—but it was met with his immediate attention and consideration, with a deep feeling towards their welfare which could not be surpassed. It will be pleasant to those who have known him most in his earliest years, to be informed, that the last years of his life were years of happiness; that he had, comparatively speaking, withdrawn from the turmoil of life—that his health was good—that he was in the fittest enjoyment of his splendid intellectual powers, and anticipating years of quiet enjoyment, when his chest complaint suddenly laid him low. His mission was fulfilled."

The remains of Mr. Stephenson were interred in the burying ground at Trinity Church, Chesterfield, on Thursday. The shops were closed during the hours of interment; the mayor and corporation met the funeral cortége, in a body, at Tapton toll-bar; and, accompanied by 300 gentlemen and shopkeepers of the town, joined in the mournful procession. The chief mourners were—Robert Stephenson, Esq. (son of the deceased), G. R. Stephenson, Esq., Mr. R. Stephenson, Mr. Hindmarsh, and Mr. Langlands (relatives). The carriages of the neighbouring gentry followed.—The Rev. A. Pool officiated.

The following biography is from the *Post-office Railway Directory*, for 1848:—

"Stephenson, George, civil engineer, father of Robert Stephenson, Esq., civil engineer. The father of the railway engineers, whose improvements of the locomotive have greatly contributed to the progress of the system. Director of the Norfolk Railway, and late chairman of the Dunstable Railway; was a director of the York and North Midland Railway—engineer of the Whitehaven Junction Railway, and Manchester and Buxton Railway; constructed the London and Birmingham Railway, York and North Midland Railway, and many other works, but of late years has resigned his chief engineering business to his son. An extensive locomotive manufacturer at Newcastle, and has supplied great numbers of locomotives both here and on the continent. Justly prides himself on having, by industry and genius, raised himself from a humble station. Was a coal viewer—took an interest in the development of the railway system—engaged in the great Liverpool and Manchester contest, and produced the best locomotive: from that moment, he took the lead in railway engineering. Knight of Leopold of Belgium (for railway services); F.R.S. Has been employed in France, Belgium, Germany, Italy, and Spain. A large colliery owner, particularly at Clay-cross: Great George-street, Westminster; Newcastle-upon-Tyne; Tapton-house, Derbyshire."

We also copy the following account of his worthy son and successor:—

"Stephenson, Robert, C.E., F.R.S., M.P. for Whitby, born 1803, only son of George Stephenson, Esq., C.E.; married the daughter of John Sanderson, Esq.; a celebrated railway engineer and locomotive manufacturer—the leader in the narrow-gauge interest; educated at Newcastle and Edinburgh; engineer of the London and North-Western Railway, South-Eastern Railway, West London Railway, Leeds and Bradford Railway, Midland Railway, Trent Valley Railway, Norfolk Railway, Aylesbury Railway, Eastern Counties Railway, Bedford and London and Birmingham Railway, Londonderry and Coleraine Railway, Londonderry and Enniskillen Railway, Whitehaven and Furness Railway, York, Newcastle, and Berwick Railway, Great North of England Railway, Buckinghamshire Railway, Dunstable Railway, Newcastle and Berwick Railway, Chester and Holyhead Railway, Liverpool, and Birkenhead Railway, Shrewsbury and Birmingham Railway, Shrewsbury and Hereford Railway, Reading, Guildford, and Relgate Railway, Newmarket Railway, East and West India Dock Railway, Cork and Bandon Railway, York and Newcastle Railway, Epsford and Edmonton Railway, Birmingham, Wolverhampton, and Stour Valley Railway, Birmingham and Gloucester Railway, Fleetwood, Preston, and West Riding Junction Railway, Shropshire Union Railway and Canal, and numerous foreign and projected lines; chairman of the Pontop and South Sheldene Railway; a Commissioner for the Health of Towns; Knight of the Order of Leopold. Is the inventor of improvements in the locomotive engine, and of the continuous tube of beam-bridge proposed for the Chester and Holyhead Railway, constructed the London and Birmingham Railway and branches, Blackwall Railway, Norfolk Railway, Aylesbury Railway, Dunstable Railway, Chester and Birkenhead Railway, Bedford Railway, Northern and Eastern Railway, and has now under his care (in progress) the Chester and Holyhead Railway, Lowestoft Railway, North Staffordshire Railway, Shrewsbury, and Hereford Railway, &c.; Great George-street, Westminster; Gloucester-square, Hyde-park; Walbrook.

CORNISH STEAM-ENGINES.

The number of pumping-engines reported for the month of July is 26—the quantity of coals consumed being 1917 bushels, lifting, in the aggregate, 18,000,000 lbs. of water 10 fathoms high—the average duty of the whole is, therefore, 54,000,000 lbs. lifted 1 foot high by the consumption of a bushel of coal.—The following have exceeded the average:—

Mines.	Engines.	Length of stroke	Load in pounds.	Load per min.	Consump. of coal in lbs.	Million lbs. lifted 1 foot by 1 bush. of coal.	Average quantity of water per min.
Great Work ..	Leeds's 60-in.	9'0	47,020	12'9	8'8	2088	56'1
East W. Croft	Trevenson's 80	10'3	85,767	12'7	3'5	1366	68'1
East Pool ..	— 60-in.	9'75	38,543	11'1	4'3	960	57'1
Carn Brea ..	Sim's 30&60	9'0	60,336	23'8	4'3	1311	67'0
United Mines	Taylor's 85-in.	11'0	97,108	15'5	5'8	2730	84'6
Ditto ..	Cardozo's 90-in.	9'0	99,468	13'7	6'2	3408	58'4
Ditto ..	Elton's 30-in.	9'0	13,631	16'2	8'2	495	68'7
Ditto ..	Loam's 85-in.	10'0	89,320	11'8	6'8	3300	56'0
Ditto ..	Hocking's 85-in.	10'0	99,063	14'6	6'2	3512	59'5
Tywarnhayle	Gardiner's 80-in.	10'0	68,517	10'9	9'0	3696	54'2
Perran St. Geo.	Sims' 60 & 100 c.	9'0	99,279	28'2	7'0	3456	59'1
East W. Rose	Penrudd's 70 in.	10'0	58,609	13'6	4'0	1376	62'1

GEOLOGICAL SURVEY OF GREAT BRITAIN.

The importance of a correct knowledge of the geological character of a country, with a view to the economical development of its mineral riches, and the application of various soils to the purposes of local agriculture, as manure, &c., determined the Government, some years since, to adopt measures for a thorough geological survey, in connection with the Museum of Economic Geology; and we have now before us the second volume, in two parts, published by order of the Lords Commissioners of her Majesty's Treasury, of the memoirs and progress of the survey. The rapid progress which has been made, in the last 20 years, in geological research, advancing it from a crude undigested study, to a beautiful and correct science, has been, in a great measure, brought about by the researches of the professors employed on this survey, under the auspices of Government, not a little assisted by the progress of the railway system, in many parts of the kingdom, where, in deep cuttings and tunnels, the nature and dip of the strata have been beautifully laid open.

The first part of this second volume is occupied by a geological, physical, and geographical description of the Malvern Hills, compared with the Palaeozoic districts of Abberley, taking in a district, extending from Abberley, in the north, to the Tewkesbury district, in the south; a distance of 20 miles through the counties of Worcester and Gloucestershire, taking in the country on both sides of the Severn, above Chepstow, with the coal-fields of the Forest of Dean. This line, strongly traced by nature, passes at the foot of the Flintshire and Denbighshire Hills, winding by Shrewsbury, Bridgnorth, and Bewdley, and touching the Abberley, Malvern, and May Hills, strikes the Severn at Pyron Passage. On the west of this line, the whole region is mountainous, principally composed of the older classes of marine strata, mixed with various coeval rocks, the effects of local igneous action. On the east, extend immense breadths of less ancient deposits, pierced at a few points by the rocks, which rise higher and spread more widely to the westward.

Throughout the volume, the ample and lucid descriptions are beautifully illustrated by wood-cuts, showing the various fractured conditions of the strata, and the appearances and remarkable features of the most interesting hills. The highest summit of the Malvern Hills is 1440 ft. above the sea. The remarkable springs along this line have always been considerably interesting; they consist of four on the western side, two in the midst, and five on the eastern side; and the levels at which they issue vary from 674 ft. to 1227 ft., at temperatures ranging from 44° to 50°; they contain carbonates of soda, lime, magnesia, and iron, sulphate and muriate of soda; and are much frequented in the summer season. The agricultural character of this district is simple, producing, on the hills, good grazing land for sheep, and, on the smooth slopes, cultivation is carried on; the great proportion, however, of silica, in the composition of the rocks, renders the soil less fertile than what often results from the decomposition of trap. The memoir then proceeds to give ample descriptions, geographically and geologically, of every particular hill and feature in the district, for which we must refer our readers to the work itself, which, particularly to parties residing in the locality, will be found highly interesting. On a general comparison between the Abberley and Malvern districts, it is considered they offer so complete a similarity, in the characters of their stratification, as to leave no doubt of the former continuity of the deposits; they were doubtless deposited in the same oceanic basin; and the long subsidence, in one case, must be admitted in the other: very slight differences also in the distribution of organic life can be pointed out. In structural formation, however, there is a marked difference, the principal of which appears to be in the country adjoining the syncline of Malvern, where the strata is much bent, but hardly broken by faults. In the Abberley district, faults, as well as flexures, abound. Syenite is seen only at one portion of the northern range, while it forms the great feature of the southern mass. The strata, forming the upper and lower silurian systems of Sir R. T. Murchison, constitute a series of deposits of from 2000 to 10,000 ft. in thickness; and the memoir next proceeds to describe the fossils peculiar to this locality, consisting of ganoid and platoid fishes, annelida, crustacea, trilobita, ostracoda, cephalopoda, heteropoda, pteropoda, gasteropoda, lamellibranchiata, brachiopoda, and enchyridermata, besides variety of fossil plants; their characters and geographical distribution are amply described; and this part of the volume forms, in itself, a perfect work on the fossil geology of Wales, and the adjoining counties. It closes with a map of the districts described, and 30 highly-finished steel engravings, illustrative of the fossils.

The second part of this second volume commences with a paper by Dr. Hooker, F.R.S., "On the Vegetation of the Carboniferous Period, as compared with that of the Present Day," in which, after some introductory remarks, he observes—"The great extent of the vegetable kingdom is hardly to be appreciated, except by the professed botanist; and he must be an advanced student who knows as much of its main features as he may acquire of the animal creation during the course of an ordinary education. Every one, for example, is familiar with the divisions of the class *animalia* into beasts, birds, fish, reptiles, shells, &c.; but much study is required to attain an equal amount of acquaintance with the parallel divisions of plants into exogenous, endogenous, &c. The technical terms, too, employed in the one case are, very many of them, universally intelligible; whilst the majority of those applied to the more conspicuous organs of plants must be acquired by a special study. Lastly, the external organs of vegetables, and especially such as are generally available in the fossil state, are not the same guides to the affinity of the objects themselves, to their habits, or to the nature of the area they occupied, which the similarly conspicuous organs of animals are. Thus, were fossil vegetables much more perfect than they are, the information to be derived from their study will never hold a rank, of equal importance to the geologist, with that afforded by animal remains." The author then proceeds to show, that notwithstanding this discouraging view of fossil botany, it possesses facilities for the investigation of its vegetable remains, afforded by no other, owing to the vast accumulation of specimens, and to many of them being under very different conditions in under-clay, the shales, in nodules of ironstone, and in sandstone. In the course of the paper, he considers the mutual affinities of the groups under which the majority of the genera range themselves. *Ferns* in the lower series; *conifera* in the highest; *sigillarie* the most important group, with *stigmata* their roots; *calamites* and *cycadee*. Their geographical distribution, relation between the soil and plants, and the consequence of the existence of coal plants has been the formation of coal. All these points are treated with a master's hand. He shows, that in the fossil flora of the coal formation, there have been found 300 species; that vegetation was highly luxuriant, and has given a full description of the most prevalent genera, illustrated by wood-cuts. This paper is highly interesting, as are two others by the same author, nearly allied thereto—"On some Peculiarities in the Structure of *Stigmata*," and "Remarks on the Structure and Affinities of some Lepidostrobi." They are treated with equal ability, and we cannot conclude a notice of Dr. Hooker's able essays, without the following extract:—"I cannot conclude these desultory, and, I fear, unsatisfactory, remarks—the fruits of one short year's study in the vast field of inquiry to which they relate—without expressing a hope, that my observations on the discouraging aspect of the science, will not deter the beginner from pursuing his investigations; still less that they will lead the geologist to reject such information as the botanist can supply, because it has hitherto been encumbered with loose speculations on the affinities of the genera, distribution of the species, and value of the characters which the latter display. Too much has been expected from the botanist, who wants materials for those bold generalisations which the fossils of the animal kingdom so abundantly supply. Except to individuals who have great facilities for this study, the collection and examination of the waifs and strays of a by-gone flora is a forbidding pursuit. It can be undertaken to advantage only by him to whom the existing flora is, in some measure, familiar; and such a one cannot see the rapid advances in paleontology, which are due to the exertions of the zoologist, without feeling a conviction, that some undistinguishing geologist will expect more definite and immediate results from his labours than the specimens at his command may ever afford."

We next have a paper "On the Asteriææ found Fossil in British Strata." These our geological readers know are the starfish. It is an interesting essay, and important, as through it we may hope to attain a knowledge of the earliest features of this important section of radial animals. Another paper follows, by the same author, "On the Cystidææ of the Silurian Rocks of the British Isles." This is another fossil radiated animal, of which geologists knew but little, until within the last few years; and the manner in which the subject is treated at considerable length, shows much research.

The concluding subjects we have before noticed in the *Mining Journal*—First Report on Coals suited to the Steam Navy; "The Lead Mines

of Cardiganshire and Montgomeryshire;" "Report on Stones for Building the New Houses of Parliament;" and the "Produce of Lead Ore in the United Kingdom for 1845-6 and 7." This part of the work concludes with tables of the sale of copper and lead ores, which we have before given, and 36 exquisitely finished illustrations; these latter, equally with those above mentioned, in Part I., are perhaps specimens of minute line engraving equal to anything that art can produce. The volumes are printed on superior paper in the clearest type, and will prove an ornament, as well as works of interest, to any public or private library.

JEFFERY'S MARINE GLUE.

In our columns of July 1, we noticed the complete and satisfactory test to which this glue had been put on board vessels after six years' service—viz.: the *Talbot* and *Curacao*; it has also been applied to nearly 100 of His Majesty's ships, with most complete success; and we have also noticed the gross injustice the patentee had been subjected to at the hands of the Lords of the Admiralty. We are glad to find that Capt. Pechell, in the House of Commons, on Tuesday night, brought forward the subject, with the view of protecting Messrs. Jeffery and Co. from the injuries which are still being inflicted on them.

It appears statement had been promulgated in the *Times*—as coming from Lord John Hay—that the great fault of the marine glue was its disagreeable smell when used in paying the seams of the decks, and that he alluded to the old affair of the *Victoria* and *Albert*, when bilge water got a peculiar smell, by passing through the tarred felt used in the vessel, and not from the marine glue at all. We can tell Capt. Pechell something further about that "old affair of the *Victoria* and *Albert*." Sometime after the negotiation was concluded, Mr. Jeffery was, we believe, in Paris, when he received a letter from the authorities, requiring him to come and superintend the paying the seams of the mahogany deck. He lost no time in obeying his instructions; but, when he arrived, which was within one week from the date of the surveyor's letter, he found, to his astonishment, that the deck had been already paid two months, with some vise stuff, which had been made up in the Dockyard, to degrade the character of his glue. Mr. Jeffery remonstrated, and the material was, by his earnest desire, removed immediately; and he sent some of his own glue on board, to pay the deck, and to repair the injury which was likely to ensue from such unfair conduct, but in vain; it was rejected; and hence the report, which was made after the material had been removed two years, that the glue gave an offensive smell—these proceedings having, no doubt, been got up and promulgated by parties of high influence, interested in some way against the introduction of the new material.

Lord John Hay professed "that the Board of Admiralty were very anxious to do Mr. Jeffery justice; but the merits of the article should be tested before expense was incurred." Now, we would ask his Lordship, has not the glue been severely tested for the past six years in vessels on actual service, and stood every trial in a most extraordinary way?—or was it justice to allow these gentlemen to spend six years of their lives, and some thousands of pounds, for the benefit of Government, without one farthing return, even for travelling expenses? Mr. Ward said, "these discussions were very inconvenient." Yes; we know they are inconvenient, as showing up to the public the disgraceful favouritism and monopolising spirit by which some of our most important public establishments are conducted. He said the Board of Admiralty would give every reasonable facility, but objected to the claim of 30,000*l.* As to the latter, it is little more than the patentee has expended, taking into account their six years' continuous attendance on Government; and the latter would save more than that sum the first year. We trust, Capt. Pechell will keep the subject in view; for it is an absolute national disgrace, although perfectly notorious, that if any patentee, let his invention be ever so valuable, once gets into the hands of the Government "jacks in office," from the highest to the lowest, unless he has some friends at Court, he is treated in the same manner—favouritism and monopoly being the bases of their proceedings.

BRETT AND LITTLE'S ELECTRIC TELEGRAPH.

We are happy to be able to inform our readers, that this telegraph—on which we have always expressed our opinion, that it was not only the most simple in principle, and economical in first cost and working, but the most correct in its operation, as compared with any other, and which is now in use on the Whitehaven and Chester and Birkenhead lines—is about to be laid down on the Great Southern and Western Railway (Ireland). This will doubtless give it an impulse, which will extend it, not only to the railways in Ireland, but to England and Scotland; and the patentee, who are young men, are deserving of every patronage for the improvements they have made, and their persevering exertions in bringing these improvements before the public, regardless of expense. They have recently purchased the patent for a galvanic battery, taken out by Mr. Weir, of Birkenhead, which is, perhaps, the most splendid addition to the science which it has ever received. It consists of a range of porcelain non-conducting cells, with simple alternate plates of copper and zinc, connected by a strip of copper; between these are placed small pieces of sponge, in which is rubbed sand, saturated with chloride of calcium, and gently pressed down, until the cells are nearly full, which gives out very considerable galvanic power. The great advantages of this battery are, that no salt of zinc is formed, consequently there is no wear and tear; the power is continuous and regular, and may be said never to vary under any ordinary changes of the atmosphere; and chloride of calcium, having the property of combining with the moisture of the atmosphere, any evaporation which may take place is immediately compensated for from the surrounding medium. Under these circumstances, battery might be locked in a box, with proper admission for air, and continue going for perhaps two years without ever having been looked at. The power is not quite so intense as with dilute sulphuric acid; but this is easily overcome by adding to the number of elements, when any amount of power may be obtained, and at no extra working expense, as there is, as we have before stated, no wear and tear. We were also shown a beautiful little arrangement for an electric telegraph machine, in which at the bottom of a light needle, made of a slip of tortoiseshell, working on an axis, is fixed a small diamond-shaped magnet, not heavier than a sixpence, and which, vibrating to either side of a coil of wire, reverses the position of the upper point of the needle, acting precisely on the old galvanometer principle; and notwithstanding the delicacy of these materials, we understand they have been, for some time, working with considerable success. Messrs. Brett and Little appear now to have the goodwill of the public; and we trust they will soon reap those solid advantages which we think they merit.

THE PATENT DOMESTIC TELEGRAPH.—The application of the principle of the electric telegraph to domestic purposes, by Mr. William Reid, as noticed by us some weeks since, in a paragraph taken from the *Birmingham Advertiser*, could not have failed to attract the attention of our readers. Since then we have been favoured with a private inspection of several sets of instruments made by Mr. Reid, by which we perceive that he has effected some important improvements on his original plan, and extended the use of the instruments—the sets under notice being applicable to hotels, taverns, tea-gardens, coffee and chop-houses, public companies, and private houses. We have already given a description of the instrument in the paragraph alluded to. The alteration, to suit the various purposes contemplated, is confined to the dial-plate, on which the specific questions and demands are disposed in due order. Independent of its utility, the instruments, which are from 18 in. to 20 in. high, are classically designed, and form a handsome piece of furniture for the drawing-room, the board-room, the parlour, and the ladies boudoir. In the board-room, and large mercantile and manufacturing establishment, and in the country mansion, its secret and instantaneous services will be found highly advantageous; and we were particularly struck with the idea, that in a great variety of instances, it might be highly beneficial for mining purposes, as it might be a most useful auxiliary, and be the means of warding off, or giving timely notice of apprehended danger. Its uses would be very important in transmitting orders, and receiving information from distant parts of the mine, where time and labour are objects. The domestic telegraph is so simple in construction, that a child may work it; it supersedes the necessity of having a servant constantly at the elbow, or communicating orders of a confidential nature through clerks; it conveys orders and messages instantaneously, effectually, and in silence, and it is probable, that the time is not far distant when it will be generally adopted in our coal and mining districts, and wherever, by its timely warning, danger can be averted, difficulties overcome, and comfort or convenience ensured; under all such circumstances, its services will be duly appreciated—in short, there is hardly any purpose of life but in which this instrument may be enlisted, and successfully and profitably applied.

Original Correspondence.

COPPER.

SIR.—The profits of copper smelting are, no doubt, very great; and this view is confirmed, on considering that the immense waste of valuable substances contained in the copper ores has hitherto been deemed of slight importance. About 12*l* tons of copper ore are smelted for every ton of fine copper produced; and these 12*l* tons are composed, on an average, thus:—Copper, 1 ton; iron, 1*l* ton; sulphur, 2 tons; siliceous and other earthy matters, oxygen, moisture, &c., 8 tons—together, 12*l* tons. Thus, for every ton of copper produced, 1*l* ton of iron is rejected, and 2 tons of sulphur, either thrown away in the scoria, or dissipated in the operations of smelting. Two tons of sulphur will suffice to form 5 tons of sulphuric acid, worth 3*l* per ton; and 1*l* ton of iron is worth at least 5*l*. Thus, materials, which would produce 1*l* ton of acid, and 5*l* worth of iron, are wasted in the production of one ton of copper—or, in other words, there is a destruction of 20*l* worth of materials for every ton of copper smelted. If we estimate the whole quantity of pure copper produced in this country, during the past 48 years, at 1,000,000 tons, there must have been, during that period, the enormous waste or destruction of iron and sulphur amounting in value to at least 20,000,000*l* sterling. The iron thus wasted is equal in quantity to the full make of the 18 blast-furnaces at Dowlais for a period of 20 years; and this iron would lay down 3000 miles of railway.

Copper ores, though containing a large per centage of sulphur, are so constituted as to be in general infusible, unless the ratio of their constituents is first altered by calcining them, so as to dissipate a portion of the sulphur. To effect this change, the ores are subjected to the first operation of calcination; and this is necessary, not because the sulphur dissipated would, by its presence, retard or lessen the effect of future operations, but solely to give a degree of fusibility to the ore, and which is chiefly brought about by the peroxidisation of a portion of the iron, set free from the sulphur, during calcination.

The Cornish ores, in their uncalcined state, are remarkably infusible; so also are the ores of Tigray, Cronebane, Allihies, and Knocknahon. The Welsh ores, and those of Ballymurtagh, are more fusible. When the calcined ore is subjected to fusion, the liquid matter divides itself into two strata, of different specific gravities; the copper is found in the lower or denser medium; and the siliceous slag of iron, containing a mere trace of copper, constitutes the upper stratum. When the fusion is effected in a crucible, and the contents are suffered to cool, the regulus, or lower stratum, divides itself completely from the supernatant scoria. On the large scale, the scoria are raked, or skimmed, from the surface of the regulus. Now, it is clear that, for a given weight of calcined ore operated upon, the greater the amount of scoria obtained, the richer in copper will the regulus be found, and vice versa. Thus, if from 100 parts of calcined ore, containing 9 per cent. of copper, we obtain by fusion 30 parts of regulus, this regulus will contain 30 per cent. of copper; but if we obtain only 20 parts of regulus, then this latter regulus will contain 45 per cent. of copper. The great object, then, in fusion, is to obtain as small, and, therefore, as concentrated, a quantity of copper regulus as possible from a given weight of ore, keeping, however, in view that there must always exist a proper degree of levity in the scoria to admit of the regulus subsiding to the bottom of the crucible, or furnace. Now, if the whole of the sulphur combined with the copper can be at one fusion separated from it, the addition of a portion of carbon will leave at once the metallic copper separated from the superincumbent slag, and fit for being at once transferred to the refinery. By the present methods, this object is effected by three or more roasting and fusions of the regulus—each operation reducing the quantity of alloyed impurities, and bringing the regulus nearer and nearer to the state of copper fit for refining; but in these operations the separation of the regulus matter is not so distinctly marked as in the first fusion; and, also, a portion of the copper becomes oxidised, and is carried off in the scoria—so that the scoria of the latter operations have to be transferred back to the first and second fusions, in certain proportions, and added to the charge; and the oxide of copper contained in these slags is decomposed by the peroxidisation of the iron, set free from its combined sulphur. Now, by the attentive consideration of the chemical and statistical conditions of the first fusion, I find that, by a proper adjustment of fluxes added to the charge, the quantity of regulus resulting from a known weight of ore may be diminished at pleasure, and its richness in copper increased in consequence; whilst by carrying out the system to its fullest extent, and by a certain addition of carbonaceous matter, the copper may be at once obtained so pure, as to contain not more than 2*l* per cent. of iron—an alloy readily got rid of by oxidisation in the refinery; thus, the expensive and tedious operations of calcining and remelting may be avoided, and the cost of smelting may be reduced to about 6*l* per ton. Copper, like iron, is capable of combining, to a certain extent, with carbon; like iron, also, it is in its most ductile state when combined with a minimum dose of carbon. If the dose of carbon be increased, or if the metal be wholly freed from carbon, it becomes far more brittle, and less malleable.

When suitable fluxes cannot be economically provided, to separate the whole of the impurities of the ore from the copper at the first fusion, a rich regulus may still be obtained, containing from 30 to 40 per cent. of copper; and this may, by calcination in ovens, with access of atmospheric air, be wholly desalphurised at one operation; and the residuum, consisting of oxides of iron and copper, combined with some earthy matter, will afford, by simple fusion with carbonaceous matter, copper, alloyed with a small per centage of iron—care being taken to add no more carbon than will revive the oxide of copper, without acting upon the more refractory oxide of iron to any injurious extent. I think the intelligent body of men, by whom the copper smelting is said to be monopolised, are often, as it were, attacked for possessing that skill and knowledge which enables them to effect profitably those operations, which the mere capitalist, deficient in skill and experience, cannot, without loss to himself, undertake to direct. Are the copper smelters to blame, because they wish to enjoy the fruits of their knowledge and experience? or do they forbid any capitalist from entering the lists of competition with them? Want of knowledge can be the only obstacle to the success of a capitalist embarking in the copper smelting trade, and that want of knowledge cannot be laid to the charge of the present members of that branch of trade. Knowledge is power, and money may prove an auxiliary aid to power, though it cannot create that power. The power of the copper smelters lies in their knowledge—not in their capital, or in their natural advantages of locality. The same power enables the old established ironmasters to carry on their works to profit; whilst inexperienced capitalists, from time to time, lavish tens of thousands, in situations often far superior to those of the old iron-works, and realise nothing but anxiety and final disappointment.

ROBERT MUSHET.

Coleford, August 15.

INDIAN IRON AND STEEL.

SIR.—In my letter, respecting Indian iron and steel, inserted last week, the words in the four concluding lines bear a construction which I never intended they should. The passage should stand thus—"Neither are they (the remarks) made with a view to lessen Mr. Radley, nor yet to exalt the merits of Mr. Heath unduly; with the latter intention they would, indeed, be superfluous.—ROBERT MUSHET: Coleford, August 14.

IRON AND STEEL.

SIR.—It is in vain that I should seek further to elicit facts from Mr. Moshet, in proof of his extraordinary theory of the strength of cast-iron; I must leave it to the judgment of practical men in the broad form in which it was first propounded—viz.: that an imperfect degree of cementation in the blast-furnace yields an heterogeneous compound with malleable iron, which produces strength; and, on the reverse, when in the blast-furnace, the cementation is effectually performed, as in the Scotch manufacture, producing homogeneity of quality, the pig-iron is of a weak, inefficient strength; but we are now told that a more complete degree of cementation induced upon pig-iron in the air-furnace, gives that homogeneity which is an essential character of strong castings. With respect to china ware, it is fully as much judged of as cast-iron by its appearance; and the makers of porcelain are accustomed to estimate to the utmost nicely by the eye if the ingredients have been properly compounded.

I have not at present a crucible at command; therefore, the question of the uniform levity of malleable iron, above a certain temperature, must rest undecided. But I would make two remarks on the instance Mr. R. Moshet has given. First, there is a mechanical levity arising from their form in abraded fragments, which may permit them to float on a fluid of similar specific gravity, though their absolute specific gravity may, in fact, be greatest. The second remark is, that I very much doubt if such frag-

tion, would assume a stratified or depositing form, those of metallic nature, having stronger affinities and greater specific gravity, would, in maintaining the struggle with electricity, or polar attraction, and while pressed on all sides with the force of accumulating matter, assume a position approaching to, if not strictly vertical. — **A WORKING MINER.**

Redruth, August 14.

SMOKE PROHIBITION BILL.

Sir.—Your Journal of the 5th inst., contains a paragraph, under the head of "Smoke Prohibition Bill"—a bill brought from the Lords, entitled, &c.—concluding with "for every such offence forfeit and pay any sum not exceeding 5l." Again, your Journal of Saturday last informs us—"In the House of Commons, on Wednesday last, the order for the second reading of the 'Smoke Prohibition Bill' was discharged, Lord Morpeth expressing a desire that the subject should be taken into consideration next session." There this matter appears to stop; but, on reading through a copy of the Public Health Bill (as amended by the Lords), ordered to be printed by the House of Commons, July 27, 1848. I perceive clause 61 enacts, that from and after the 1st of January, 1849, every fire-place and furnace in certain works, shall, if practicable, be constructed so as to prevent the emission from the flue thereof of opaque smoke, under a penalty not exceeding 5l. per day. My object in troubling you with this letter, is to ask the opinion of some of your correspondents, whether the owners of furnaces *already existing* will come under the operation of the said clause, 61? If so, what need of a Prohibition of Smoke Bill being talked of for next session. My impression is, that as an owner of a furnace *already existing*, I shall not be liable until a bill passes for that purpose. Am I right or wrong? I shall feel obliged to any one who will enlighten me upon this matter, which, I have no doubt, has also aroused the attention of the owners of steam-boilers and other furnaces, and, more particularly, the numerous patentees of plans for preventing and consuming smoke, the large number of which, in my humble opinion, only too plainly show the difficulty of its accomplishment in *an economical and really practical manner in every respect*. In conclusion, I cannot help thinking the noble lords who sent the bill to the Commons would have conferred a great benefit upon the manufacturing community, if they had appended to the bill a description of the *best and most practical method at present known*; and by legalising the use of any known method, notwithstanding it may have been patented, would have, probably, enabled the owners of furnaces, not only to have answered to the legal whip and spur threatened to be applied, but to mend their pace, and go-a-head, without smoke.

Gloucester, August 15.

CONSTANT READER.

SIR.—I feel greatly obliged to you for having so often kindly published reports on the progress made in the construction of my air-compressing apparatus, and especially with regard to the experimental carriage, built in the workshops of the College for Civil Engineers, Putney—a very correct account of the first successful trial of which appeared in your Journal of Saturday last. I am happy to inform you, that we had a second, and still more successful, trial on the Wandsworth-road, on Friday, the 11th inst. In this instance, the carriage, as before, weighed about 3 tons; but we carried also 20 persons. Notwithstanding this increased load having proportionally added to the working power of the moderator, we started up-hill with a much greater speed—at an average rate of from 12 to 18 miles per hour. We were this time, as on the first, without accident—not the least injury occurring either to the reservoir or machinery; and I cannot otherwise conclude, than that the problem has been solved, by my inventions in compressing, expanding, and regulating compressed-air, to produce a safe, more convenient, and economical system of locomotion on railroads. No one has ever disputed the superiority of air in safety and comfort; but it was always admitted, that economy could not have been attained before the discovery of my improvements—described in my two patents of 1841 and of 1847—of which I shall, when further advanced, give you a detailed report and description. I, myself, feel so fully and deeply convinced, and even flatter myself to be able to convince other scientific and practical men, by arguments and calculation, of it, that the saving against steam-power, in fuel, men, repairs, and interest, will reach a very high per centage. I believe it will reach, with the application of my invention in generating steam, to about 75 per cent, or three-fourths of the present current expenses in the locomotive department; and this is my sincere and candid opinion of the immense public benefit to be attainable by my system.—BERNHARD VON RATHEN: *Putney, Aug. 16.*

STEAM-CARRIAGES ON TURNPIKE ROADS.

Sir.—In the *Mining Journal* of the 12th inst., I observe a communication from Mr. Thomas Motley, C.E., upon the subject of Sir James Anderson's steam-carriage for common roads, in which he states that Sir James had arrived at perfection, or very nearly so, and that he has no doubt of the success of the invention. It would have been desirable if Mr. Motley had given in detail the results of his inspection of the "steam-horse;" for without this it will be difficult, if not impossible, to convince the public that this attempt on the part of the patentee will not end like his former ones—in failure. An advocate myself for steam on common roads, I am far from desirous of detracting from the merits of Sir James Anderson's invention; on the contrary, his unconquerable perseverance under so many discouraging circumstances, deserves support; yet, I cannot but think that, however perfect his contrivances are, they must fail, from the enormous amount of friction to be overcome, from the imperfection of the road surface, and consequent wear and tear of the working parts of the engine. To succeed with steam on common roads, the subject must be dealt with in a manner different from that to which inventors have hitherto turned their attention; the effort must be to *reduce friction*, and not to create a power to overcome it, for even if power can be created in the requisite space, the cost attending it must at once put the subject out of consideration in a commercial point of view. More than this, I am of opinion that the following objects must be accomplished:—

1. The condition of the road surface must be of small consequence to the economical action of the engine.

2. The arrangement of the springs should be such that there cannot be any violent strains in the working parts of the engine.

3. Inclines so steep as 1 in 15 must be overcome without the necessity of creating extra bite, by the addition of more weight; they would be required upon the level.

Now, Sir James Anderson's invention does not accomplish these conditions, nor am I aware of any invention, yet publicly tried, that has done so. I believe, however, that these objects have been attained and patented by Mr. Henry Wrigg, C.E., who did me the favour of showing a large sized model of his invention, which was put through various severe tests. This model was afterwards exhibited, and its properties illustrated before the Institution of Civil Engineers of Dublin, in May last, and I believe is on the point of being submitted to trial on a larger scale, which I am of opinion will be attended with perfect success.

Mr. Wrigg seems to have devoted his attention altogether to the essential conditions which I before stated were, in my opinion, necessary; and, to illustrate them, I cannot do better than give you an extract from the patentee's description of his carriage, which is as follows:—"The principle of construction which I use is that of making every description of carriage carry its own rails, but instead of the wheels (as in ordinary carriages) moving on rails, I reverse the condition, and make the rails slide upon wheels, which are supported on pedestals, attached to, and forming part of an endless chain, or belt, revolving upon drums in such a manner as to present to the rails a continuous succession of bearing wheels—the rails being immovably fixed to the bottom of the carriage. The bases of the pedestals can be constructed of such an extent, without any increase of friction (except so far as the additional weight is concerned), as to present an area to the surface on which it rests, incapable of being forced into it by any ordinary weight placed on the carriage; in this way, the passage of enormous loads over imperfect roads is accomplished with the same facility as if the surface was perfectly sound. I am also enabled to ascend steep inclines without the necessity of adding weight to create bite, and the total amount of friction I calculate so low as 16 lbs. per ton, at 2½ miles an hour; *this being constant, whether the road surface is in repair or not.*"

Now, according to Mr. Motley, this friction is about half of that which Sir James Anderson has to deal with, *under the most favourable condition*; yet, I am aware that Mr. Wrigg does not pretend to ascend an incline of 1 in 23, with a gross load of 2½ tons, at a greater speed than one mile an hour—the power of his engine being 2250 lbs. How limited then must be the load which Sir James Anderson's engine can convey at 4 miles an hour, upon an incline of 1 in 20, with an imperfect road surface, notwithstanding that the engine, water, and fuel are to weigh only 3 tons, and its power equal to 3000 lbs.—CHARLES WEEKES, C.E.: *London, August 15.*

STEAM CARRIAGES ON COMMON ROADS.

SIR.—Allow me, through your columns, to call the attention of Sir J. Anderson to my mode of converting rectilinear into circular motion—for which, with other inventions, a medal was awarded me by the Royal Cornwall Polytechnic Society, although, for want of funds to obtain a well-finished model, a rough one only was exhibited, made by myself, a description and diagram of which appeared, some time since, in your columns. This mode would infallibly overcome any temporary obstruction to the revolution of the wheels, supposing it to be a stone, or block, of any kind. It would insure the surmounting of any gradient, provided the friction or adhesive power of the periphery, in proportion with the horse-power of the engine, be sufficient to overcome the incline of (say) 1 in 10, the maximum recommended. It would, perhaps, be desirable to corrugate the tire, if not destructive to the road; or some elastic material might be inserted in a groove, in the outer circumference; or an elastic wheel might be contrived, to take a hold, or grip, on the road, by simple pressure during its revolution. This seems, with reduction of gravity in the moving mass, to be all that is wanted for the success of the plan, whose inventors are entitled to the praise of the public, for their indefatigable perseverance in working out an idea of such long contemplation. A. T. J. MARTIN.

Penzance, July 31.

SIR ISAAC NEWTON'S HOUSE.

SIR.—I am sorry to find that the wood-cut is not finished for the perspective view of Sir Isaac Newton's house, in St. Martin's-street, Leicestershire-square, as I promised you in your Journal of last week. I am happy to find that a considerable number of contributors are ready to come forward; and M. Bartolini, of the Hotel Newton, was the first to offer his mite. I neglected to mention, in my last week's communication, that M. Bartolini originally opened the Hotel Newton, in Sir Isaac's house; but, in consequence of the proprietors of the chapel next door having obtained the lease, or freehold, they compelled him to leave, and he removed to the other side of the chapel, the corner of St. Martin's-street and Orange-street. I trust to furnish you, early next week, for the ensuing publication, some further particulars, with the promised diagram. A. SMITH.

Putney Galvanised Iron Wire-Rope Works, Millwall, Poplar, August 18.

QUESTION OF DAMAGE ATTENDANT ON MINING OPERATIONS.

SIR.—A question having arisen with respect to a claim made upon a mine in which I hold an interest, with regard to an animal which is said to have been killed from "eating lead ore," and as legal proceedings are likely to take place, I should feel obliged by your giving me your opinion on the following points—viz.: whether lead ore will cause death?—and whether the adventurers are called upon to fence off any stream into which the refuse of the mine, or the washings, might be carried? I think it is also a question as to the proof that the "eating of lead ore" was actually the cause of death, which might have arisen from some other cause. Your reply in your next publication will oblige—

AN ADVENTURER.

Flintshire, August 8.

In reply to our correspondent, we may observe, that in our opinion (although, it is observed, such is not legal) we consider that the onus, or proof, lies on the plaintiff, to show not only that the death of the animal was caused by "eating lead ore," but whether the preference shown for the mineral, in lieu of the green sward, was, in itself, legitimate; or, in other words, that the cow might not have been a trespasser; in which case we have no hesitation in saying, an action would not lie, inasmuch that the cow would have been robbing the adventurer, by the abstraction of the ore, instead of the latter being instrumental, or party to the death of the animal. This appears to be the first question. The next is, as to whether the "fatal occurrence" is attributable to the cause assigned—to prove which, we presume, a post mortem examination must take place; an analysis to be duly made of the contents of the stomach; the poisonous qualities of lead ore, its produce per cent, and the proportion of arsenic, or any other matter, in a given portion thereof; its effect upon the human frame and animal bodies, and, in fact, that conclusive testimony which would, doubtless, be afforded by the evidence of veterinary surgeons, cow doctors, and the legal arguments of counsel. The question, however, we may handle it triflingly, is, in itself, important, and involves a question which we should feel well pleased to have defined, and determined by a court of law. Several questions with reference to mining operations, and the results said to arise from them, have been oft the subject of litigation or reference; as, for instance, in the neighbourhood of Swansea, we believe some 2000l. or 3000l. per annum is paid by the smelters to parties in a circuit of some six or eight miles, to meet claims made for cattle, which are said to die from the effects of the copper smoke, and we have heard of many instances in the colliery districts, of cattle, which have died, having been thrown down pits or shafts, and claims set forth, on the ground that they had fallen in—there not being due protection by rails, or otherwise. In our opinion, there can be no doubt but there is a legal claim as regards any injury or loss which may be sustained from the want of care or precaution on the part of the colliery or mine owner, or adventurer, with respect to the last cited case; but we should contend, without proof being put forward of the right of the party or animal so injured to be on the ground, a fair defence would be afforded as to trespass. With reference to another question of our correspondent, as to "fencing off any stream into which the refuse of the mine or washings might be carried," we are disposed to think that in case the water should become poisoned, or calculated to injure cattle, or even fish—assuming a salmon or other fishery for which an annual stipend is paid, to exist—in such case the mine proprietor would be liable for damages, inasmuch that he, from the nature of his operations, in obtaining ore, causes an influx of poisonous matter to the stream, whereby the damage complained of is caused. We cannot, at the moment, refer to any action having been brought, founded on this point, although we have an impression such has been the case. These matters are, we believe, generally arranged or compromised. We have entered at greater length that we had intended, in treating on the subject, but we attach to it that importance which we trust will be felt by our readers, and cause it to be fully discussed in our columns, which are open to the question.]

[ADVERTISEMENT.]

DEAN FOREST.

SIR.—In consequence of the letters you last week inserted, I think it due to myself, under your permission, to add a brief explanation:—My late lamented father bequeathed me one-third of a property, which had for many years under our joint management, yielded a net income of 3000l. per annum. My father left me sole manager of this property. One of the executors under the will having dismissed me from my office, it was deemed prudent to claim the protection of the Court of Chancery. In March last he was proposed before the Court of Chancery as a fit person to manage my father's collieries and other property. The Vice-Chancellor, however, was of opinion, that I was better qualified to fulfil the duties of that office than a gentleman resident in London. I was nominated accordingly, but the nomination is not yet carried out. I was, therefore, not in a situation to ascertain personally the truth, or otherwise, of the extraordinary proceedings alleged to be carried on at the works; and I had so much confidence in the information I received, that I, unfortunately, gave publicity to statements which were erroneous, and affecting the character of individuals wholly undeserving of censure. The eviler treatment I had experienced at the hands of one of the executors, since my father's decease, coupled with the fact, that, through his arbitrary, or unscrupulous, measures, I had been, with a wife and family, reduced to a state of absolute destitution, whilst my creditors, London, had the kindest forbearance—in vain looked for their rights. These things, I say, were a source of irritation, of no trifling nature—even to the most patient of men. Alex. Gibson, Esq., my father's oldest, most intimate, and tried friend, was appointed an executor by my father: unable to act in that capacity,

Yours faithfully,

ALEX. GIBSON.

Now, for 14 months past, the executor alluded to, by virtue of his office, held the property in question; and no dividends have accrued to the legatees—neither does this gentleman design even to reply to the inquiries of the residuary legatees, as to the time when, if ever, they may expect to derive some benefit from the valuable property bequeathed to them. My father's prudence, in settling his affairs, has, in consequence, been impugned by many; from ignorance of the facts I have now stated.—I must apologise for having thus obtruded upon your valuable columns matter which can only interest a small portion of your numerous readers.—ROBT. MUNNET: *Coleford, August 14.*

BLACKWALL RAILWAY EXTENSION.—The branch of the Blackwall Railway to the Eastern Counties line will be opened in the course of October. With the exception of the great bridge over the Commercial-road, the works are almost complete.

CORK AND BANDON RAILWAY.—The works on this line are in a very forward state; from Bandon to the half-way house is nearly finished, and it is contemplated by the directors to open traffic on that portion by the 1st of March next. They mean also to take steps, at the same time, for the conveyance of passengers and light goods from Ballinlough to Cork, till the whole line shall have been completed. We are sure that the traffic that will thereupon spring up will more than repay the company for this experiment. All the more heavy works on the whole line, such as bridges and viaducts, are fully, or in greater part, completed. There are, at present, 600 men daily employed on the works. We wish every possible success to the patriotic and enterprising company who have, at a time of great distress, given employment to a large portion of our working classes; and we trust that the generous issue to their excellent undertaking, will fully compensate them for the sacrifices they have made.—*Cork Southern Reporter.*

Proceedings of Public Companies.

MEETINGS DURING THE ENSUING WEEK.

THIS DAY . . . Northern and Eastern Railway—offices, at One. Monday . . . National Brazilian Mining Company—London Tavern, at One. Lynly Valley Railway—offices, at One. Thames Haven Dock and Railway—Gullhall Coffee-house, at One. Exeter, Yeovil, and Dorchester Railway—London Tavern, at One. Tuesday . . . Vale Curtis Mining Company—offices, at Twelve. London and Blackwall Railway—London Tavern, at Twelve. Brighton Gas-Light and Coke Company—offices, at One. Wednesday . . . Vale of Neath Railway—offices, at Twelve. South Wales Railway—Paddington Station, at One for Two. Tenby, Saundersfoot, and South Wales Railway & Pier Co.—offices, Two. Thursday . . . Norfolk Railway—offices, at One. East and West India Docks & Birmingham Junction R'way—offices, Two. Northern Counties Union Railway—London Tavern, at Twelve. Friday . . . London and South-Western Railway—Nine Elms Station, at One. Buckinghamshire Railway—Euston Station, at Two. New South-Western Steam Navigation Co.—Vauxhall Station, at Four. Saturday . . . Windsor, Staines, and South-Western Railway—Vauxhall Station, One. Cornwall Railway—Town Hall, Truro, at Twelve.

[The meetings of Mining Companies are inserted among the Mining Intelligence.]

BRITISH EMPIRE MUTUAL LIFE ASSURANCE COMPANY.

An extraordinary general meeting of this company was held at Radley's Hotel, New Bridge-street, on Tuesday last, the 15th inst. John Gover, Esq., presided, and stated, that the meeting was called to consider the expediency of making various alterations, which had been found necessary, in the Deed of Settlement. He congratulated the members present on the progress of the company, as shown by the fact that, since February 29, when the annual general meeting was held, there had been effected 283 new policies—namely: 124 life, and 162 investment assurances—being at the rate of 5l. per month, and forming a total of 879 policies issued since the commencement of the company's operations in January, 1847. The total amount received in premiums has been 5766l. 12s. 5d. The chairman then called on Mr. W. H. Watson, the solicitor of the company, to state the particulars of the proposed alterations, the most important of which was one providing for the formation of a reserved fund of 100,000l.—Mr. MILLAR moved, and Mr. GARDNER seconded, a series of resolutions adopting the alterations, which were carried unanimously.

After a vote of thanks to the chairman, the meeting adjourned.

LONDON AND WESTMINSTER BANK.

A special general meeting was held at the establishment in Lombard-street, on Wednesday last, for confirming a resolution for enabling the annual general meeting of proprietors to be held on the third Wednesday in January, instead of the first Wednesday in March. The chair was taken by Ald. SALOMON, who stated, that the effect of the resolution now submitted, and which caused an alteration in the 57th clause of the deed of settlement, would be, that the dividends would become payable at an earlier period, and that the annual meeting would be in future held on the third Wednesday in January in every year, instead of March, as hitherto; and a half-yearly meeting might be called by the directors, either on the third Wednesday in July, or on any other day when it might be deemed expedient by the directors. The resolution having been read and agreed to unanimously, the meeting adjourned.

THE SOUTHAMPTON DOCKS.

The half-yearly meeting of this company was held at the offices in Southampton, on Tuesday last, the 15th inst. Colonel BARLOW in the chair.

The SECRETARY read the minutes of the last meeting, and the following report:—"Notwithstanding the general depression of trade and commercial enterprise, the business of the company is still progressive. The earnings for the half-year, to the 30th June, 1848, have been 9315l. 10s. 7d., to those on the 30th June, 1847, were 7626l. 11s. 1d.; being an increase of 1724l. 8s. 8d. in the earnings of the half-year to the 30th of June, 1848, as compared with the earnings of the corresponding half-year of 1847. The accounts exhibit a balance, after the payment of expenses, of 3180l. 13s. 1d.; and the directors are, consequently, enabled to recommend a dividend, clear of income tax, of 27 per cent, for the half-year (10s. per share), being at the rate of 27 per cent, per annum. The directors have the satisfaction to report that they have concluded an arrangement with Mr. Joseph White, of East Cowes, for the establishment on the company's land, contiguous to the dry docks, of a yard for building ships of the largest class; and that the necessary workshops and offices have been already erected. This arrangement will ensure at all times every possible facility for the repair of ships in the company's dry docks. The directors have been much disappointed by the rejection, by the committee of the House of Lords, of a bill which had passed the House of Commons, for the construction of seven miles of railway between Harrow and Brentford, which would have connected Southampton with the North-Western, the Great Northern, and all the narrow gauge railways in the kingdom, and would have afforded to the docks an unbroken narrow gauge communication with the whole of the manufacturing districts. This connecting link is on every account so important to the interests of the country at large, as well as to those of the port and the docks of Southampton, that the directors feel satisfied that its construction must be sanctioned in the next session of Parliament; and, as the works can then be executed in less than a year, that they may still rely at no very distant period upon the means, without change of carriage or break of gauge, of distributing imports to all parts of the country, and of bringing down from the north to the ship's side in the docks return cargoes, which are alone wanting to ensure a vast increase of trade, and to render Southampton one of the first ports in the kingdom. In the meantime, the best must be made of the accommodation which is about to be afforded by the opening of the Great Western line from Reading to Basingstoke."

Comparative statement of earnings for the half-years ending respectively—

30th June, 1844	£ 558 13 4

<tbl

BRITISH SMELTING ASSOCIATION.

CAPITAL £500,000, in 50,000 SHARES, of £10 EACH.

Provisionally Registered, pursuant to Act of Parliament, 7 and 8 Victoria, cap. 110.

AN INFLUENTIAL BOARD OF DIRECTORS IS IN COURSE OF FORMATION, AND WILL SHORTLY BE PUBLISHED.

This company is formed for the purpose of carrying on the smelting of British and Foreign Copper Ores, on the best and most economical principles. It is intended to apply the capital of the undertaking solely to the operations which are inseparable from that business.

The present smelting companies, few in number, and without competition, are the purchasers of nearly the whole of the ores raised in this country, as well as of that imported. The whole burden of carrying on the copper trade is, therefore, thrown upon them; and it is not to be wondered at, that the mining interest should have some reason to complain of a monopoly, when, from the existing state of things, the whole of the British and foreign ores is necessarily thrown into the hands of a few private companies.

It is well known that they realise immense profits; and, to prove this, the following statement of the Cornish and foreign copper ores, raised and sold during the years 1846 and 1847 respectively, may be given. Of the Cornish ores each different ticketing, during the year, has been calculated separately; but, for the sake of brevity, the results only are given:—

1846.

	Average Produce.	Av. price of pure Copper.	Quantity of Ore.	Quantity of pure Copper.	Amount paid for Ore.	Value of pure copper produced.	Gross Profits.
			21 cwt.	Tons cwt.	£ s. d.	£ s. d.	£ s. d.
Cornish Ores	8	92	153,620	12,113 17	815,015 11 6	1,119,197 19 0	304,182 7 6
Foreign ditto (including regulus)	25	92	57,440	14,360 0	661,866 15 0	1,321,120 0	659,253 5 0
Totals			211,060	26,473 17	1,476,882 6 6	2,440,317 19 0	963,435 12 6
Deduct smelting charges, &c., at 17d. per ton of pure copper							450,055 8 0
Net profit, equal to 35 per cent.							£513,380 4 6

1847.

	Average Produce.	Av. price of pure Copper.	Quantity of Ore.	Quantity of pure Copper.	Amount paid for Ore.	Value of pure copper produced.	Gross Profits.
			21 cwt.	Tons cwt.	£ s. d.	£ s. d.	£ s. d.
Cornish Ores	8	92	152,837	12,461 5	870,617 15 6	1,194,204 9 0	323,590 13 6
Foreign ditto (including regulus)	25	92	38,818	9,704 0	562,102 4 6	892,768 0 0	330,665 15 6
Totals			191,655	22,165 5	1,432,620 0 0	2,086,972 9 0	654,352 9 0
Deduct smelting charges, &c., at 17d. per ton of pure copper							376,809 10 0
Net profit, equal to 19 per cent.							£277,542 19 0

It appears, therefore, that, during the year 1846, the smelters realised, at least, 35 per cent. on copper ores alone, and in 1847, 19 per cent. The falling off in the latter year is evidently, in a great measure, attributable to the decreased importation of foreign ores—the difference, compared with the previous year, being 18,622 tons. Upon foreign ores the largest profits are made; for, it must be remembered, that a considerable quantity, particularly that from Chili, comes in a state of regulus; and, although the smelter may actually give a higher price for it, yet, having gone through three of the processes required for smelting, the expenses of reducing it to pure copper are not so great as that of the rough Cornish ores. It is not acknowledged to be regulus, but, nevertheless, it is so, although entered under the designation of "ore."

The above statement is a very moderate one, as it is believed that, at Swansea, the ore may be smelted at a less cost.

The great complaint of the miners against the smelters is, that they do not get a fair price for their ores, in proportion to its produce, and the price of pure copper in the market—that is, it does not vary uniformly. The following table, compiled from data published in the *Mining Journal*, proves forcibly the justice of this complaint. It shows the different sales of the produce of the Cornish mines during the six months ending the 30th of June last, with the average standard, produce, price, and quantity of the ore, the quantity of fine copper, its price per ton, and the amount of net profits realised:—

PRODUCE OF CORNISH MINES FOR THE SIX MONTHS ENDING 30TH JUNE, 1848.

Date of Sale.	Average Standard.	Average Produce.	Average Price.	Quantity of Ore.	Quantity of pure Copper.	Amount paid for Ore.	Price of pure Copper.	Value of pure Copper.	Gross Profits.
	£ s. d.	£ s. d.	£ s. d.	21 cwt.	Tons cwt.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
January	6	99 1 0	82	5 8 0	3444	282 14	18,531 14 0	£27	27,426 15 0
	13	94 6 0	92	5 17 0	2979	208 7	12,378 16 0		20,202 19 0
	20	87 14 0	10	6 0 0	2693	268 3	16,118 6 6		26,010 11 0
	27	101 5 0	75	4 14 6	4210	311 12	19,976 4 6		30,239 15 0
February	3	102 19 0	74	4 19 0	4294	319 17	21,132 6 6	92	29,426 4 0
	10	97 0 0	75	5 17 0	2148	190 14	12,596 19 0		17,549 0 0
	17	91 7 0	102	6 14 0	2506	259 3	16,787 8 0		23,841 16 0
	24	106 3 0	73	4 19 0	2637	192 5	13,163 7 6		17,687 0 0
March	3	102 16 0	72	5 7 6	3237	256 16	17,503 3 0	£37 10—88 10	22,550 0 0
	9	97 13 0	82	5 16 0	3215	303 1	13,466 17 6		17,868 8 0
	23	93 1 0	92	5 17 0	2922	271 7	17,223 3 6		23,378 16 0
	30	100 11 0	73	4 13 6	4852	357 16	22,639 3 6		31,468 8 0
April	6	98 9 0	71	4 5 0	5080	360 3	21,498 12 0		31,693 4 0
	13	89 3 0	92	5 11 6	2493	233 19	13,912 12 6		20,499 12 0
	20	84 10 0	92	5 9 6	3012	293 1	16,402 10 6		25,700 8 0
	27	94 16 0	71	4 3 0	2702	196 19	11,341 19 0		17,331 12 0
May	4	92 2 0	81	4 17 0	3271	269 7	15,813 14 6		23,702 16 0
	11	88 12 0	81	4 15 0	2594	221 14	12,510 14 6		19,509 12 0
	18	81 17 0	104	5 10 0	2787	281 3	15,355 11 0		24,741 4 0
	25	90 6 0	73	3 19 0	4569	239 5	18,098 9 6		29,854 0 0
June	1	92 4 0	71	3 17 0	3966	284 4	15,304 14 6		25,009 12 0
	8	84 4 0	92	5 2 0	1773	165 5	9,041 9 6		14,542 0 0
	22	82 13 0	92	4 14 6	2996	290 5	15,931 3 6		25,542 0 0
	29	93 19 0	74	4 1 6	2739	199 6	11,199 6 0		17,538 8 0
Foreign ores		av. 82	25	75442	6254 6	379,848 6 6	Average £292	563,832 0 0	£183,983 13 6
	(including regulus)			20288	5064 0	232,956 12 0	" "	465,888 0 0	232,931 8 0
				95700	11318 6	612,804 18 6		1,029,720 0 0	£416,915 1 6
									192,411 2 0
Deduct smelting charges, &c., at £17 per ton of pure copper									£224,504 19 6
Net profit equal to 36 per cent. for half-year									

A single glance at this table will show, that, while the produce has been above the average (84), and the average price of pure copper was the same as the average of 1846 and 1847, yet the prices given for the ore were remarkably low. The standard, certainly, has varied considerably, but that is fixed by the smelters themselves, and appears to have no regular or uniform rule. Take, for instance, the sale of the 30th of March—the produce is 73, and the price of pure copper 92d. per ton, the price of the ore 41. 13s. 6d., and the standard is 100. 11s.; compare this with the sale of the 25th of May—the produce and the price of copper is the same as the former, but the standard is marked 90. 6s., and the price of the ore is only 37. 19s. It is evident, therefore, that the miner is subjected to great loss by the monopoly of the smelting trade—whether unavoidably or not, it is not necessary to say. The following are the total amounts of copper ore imported in each of the five years, ending 5th January, 1848:—

1843 Tons 54,370 1845 Tons 56,697
1844 58,405 1846 41,490

1847 Tons 41,490.

From this it appears, that a large falling off took place last year—caused, in a great measure, by the duty which is at present imposed upon foreign ores; but a bill being now before Parliament for its reduction, and which will probably repeal it, it may confidently be expected that a much larger quantity will again be imported. The principal decrease has taken place in the ores imported from Chili and Cuba, whence the largest quantities come; while there has been a considerable increase from Australia and New Zealand, although the supplies from that quarter are only commencing. There can be no doubt also, that the falling off in the import from Cuba is attributable, to some extent, to failures in the production from the mines; and, probably, this is true as to Chili, though a portion of the copper ore of that country may, in consequence of the duty, have been smelted there, or in America, instead of coming here:—

Chili. Cuba. Australia and New Zealand.
1843 Tons 19,825 31,683 42
1844 19,566 34,764 134
1845 10,823 41,341 109
1846 13,565 31,766 3303
1847 9,222 23,835 5795

If, therefore, the reduction of the duty cause the importations from Chili and Cuba to increase, it is probable that the total importations will be considerably larger than they ever were; while, it will be observed, as regards the returns from Australia and New Zealand, such have increased from 184 tons, in 1844, to 5795 tons in the past year (1847); at the same time that other mines, among which are those on the island of Kawau, near Auckland, belonging to the North British Australasian Company, which are only now coming into active operation—10 to 12 tons per day being raised therefrom, as appears by advices received some time ago, and the whole island containing lodes of extreme richness. From this source alone a large additional supply may be expected. The rich mines of South Australia are too well known to require any comment.

It may fairly be expected, therefore, that the smelting trade will be considerably increased; and, in ordinary times, the demand for copper will be fully equal to any supply that may take place.

In the above estimates, the smelting and other charges for making a ton of pure copper, according to the usual process at Swansea, has been taken at 17d.; but it is well known that it does not, in general, cost the smelters so much. Even at that rate, however, it is evident that their net profits are upwards of 30% per cent. It is considered advisable that this company should adopt any recent improvements in the smelting of copper, by which it may be done more economically, and at the same time as efficiently.

It will also be of great advantage, if works already erected can be obtained, either on lease or by purchase, in order that operations may be commenced with as little delay as possible, and thus make an early return to the shareholders. For that purpose, inquiries are now being made at and in the neighbourhood of, Swansea; but when the board of directors is formed, the question of the locality of